A PROPOSED MILITARY CONSTRUCTION FACILITY INVESTMENT MODEL

THESIS

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Andre R. Dempsey

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Abstract

The fiscal year (FY)1999 and FY2000 National Defense Authorization Acts (NDAA) amended Title 10 USC, Section 17, and directed the secretary of defense to report annually on the capability of installations and facilities to provide support to forces in the conduct of their missions. This has come to be known as the Installations' Readiness Report (IRR). The Air Force's IRR links facility sustainment, restoration, and modernization (SRM) requirements, with the impact on the installation's ability to support the mission associated with the particular facility class. The Air Force's centralized military construction (MILCON) program model used to program major facility requirements does not directly target facility investment in the "deficient" facility classes defined in the Installations' Readiness Report.

This research combined the system dynamics and value-focused thinking methodologies together to develop a proposed MILCON model that might better target funding of deficient facility class requirements. The results from a system dynamics analysis of the existing MILCON model were used to better understand the MILCON program and leverage management policies in a proposed MILCON model. The proposed MILCON model was then developed using a gold standard value-focused thinking approach. The Air Force's goals and objectives for the MILCON program were derived from a literature review of key doctrine, policies, and guidance. The proposed model was also evaluated to identify relevant favorable or unfavorable behavior trends in eliminating deficient facility class requirements. The proposed model provides a

significant short and long-term improvement over the existing model in targeting and eliminating deficient facility class requirements. The model demonstrates a 20 percent improvement in targeting these facility requirements in FY2004 and a long-term trend towards completely eliminating these requirements.

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Chapter 1. Introduction

1.0 Background

1.01 Private Industry Capital Investments. In private industry, a corporation's success depends on sound capital investment decisions that result in effective resource allocation (Farragher and Kleiman, 1999:2). In the business world, success is defined in terms of the corporation's fiscal bottom line or profitability. Consequently, most private industry capital investment decisions are based on financial criteria such as internal rate of return (IRR), payback periods, net present value (NPV), or return on investment (ROI). Furthermore, industry experts prefer more complex discounted methods such as net present value over the simple payback measures used in smaller firms. Therefore, the accountant typically plays a major role in making private industry's capital investment decisions.

1.02 Public Sector Capital Investments. Public sector agencies, including the Department of Defense (DoD), generally do not measure their success according to financial profits and income statements. Nevertheless, capital investment decisions are equally critical to an agency's success. In contrast to private industry though, public sector success is usually measured in terms of tangible and intangible benefits to the agency's mission. Since functional experts are better equipped to evaluate the benefits to

their mission, they tend to play a much more important role in public sector capital investment decisions. The functional experts in the DoD choose to measure capital investment funding success in terms of the Installations' Readiness Report and the Facilities Recapitalization Metric. These two metrics indirectly measure the readiness impact of capital investments.

1.03 Air Force Capital Investment and Readiness Issues. Over the past decade, critical Air Force facility capital investment funding was routinely diverted to pay for shortfalls in other priority programs. As a result, facility infrastructure was severely underfunded (QDR, 2001). In fact, the fiscal year 2001 (FY2001) Installations' Readiness Report (IRR) stated that 63 percent of Air Force facility classes reflect significant (C-3) or major (C-4) deficiencies that either prevent or preclude satisfactory mission accomplishment. Facility classes are collections of similar facilities from more than 1,500 facility types used in the real property records (IRR Instructions, 2001). The IRR ratings, synonymous with the "readiness" of the facilities, also include C-1 (only minor deficiencies with negligible impact on capability to perform required missions) and C-2 (some deficiencies with limited impact on capability to perform required mission). In the same report, the Air Force estimated it will cost $18 billion, including $10 billion in the military construction (MILCON) program, to eliminate these deficiencies (IRR database, 2002).

The problem of underfunded infrastructure and high percentages of facility class deficiencies is not unique to the Air Force. The DoD reports 69 percent of all defense-related facility classes are rated either C-3 or C-4, and they have established a short-term goal of eliminating these deficiencies by 2010 (Framework for Readiness, 2001).

Furthermore, in an effort to prevent this problem from happening again, the DoD established a long-term goal of a 67-year recapitalization rate. According to the Facility Recapitalization Metric (2002), recapitalization rate is defined as "the number of years required to regenerate a physical plant – either through replacement or major renovation(s) – at a given level of investment." In other words, the DoD's long-term goal is intended to 1) eliminate immediate facility class deficiencies identified in the Installations' Readiness Report and 2) prevent further deterioration of the infrastructure by replacing facilities at a recapitalization rate of 67 years. To help achieve this goal, the DoD recognized the need for dedicated (i.e., "fenced") funds and created a new category of funding called restoration and modernization. In response to the DoD's goal, the Air Force increased its Future Years Defense Program (FYDP) funding levels for the MILCON program. Figure 1 shows the budgeted amounts for the FY2004 FYDP. The funding levels above the 67-year recapitalization target rate are required through 2010 to buy down the C-3/C-4 requirements by 2010 per the defense planning guidance.

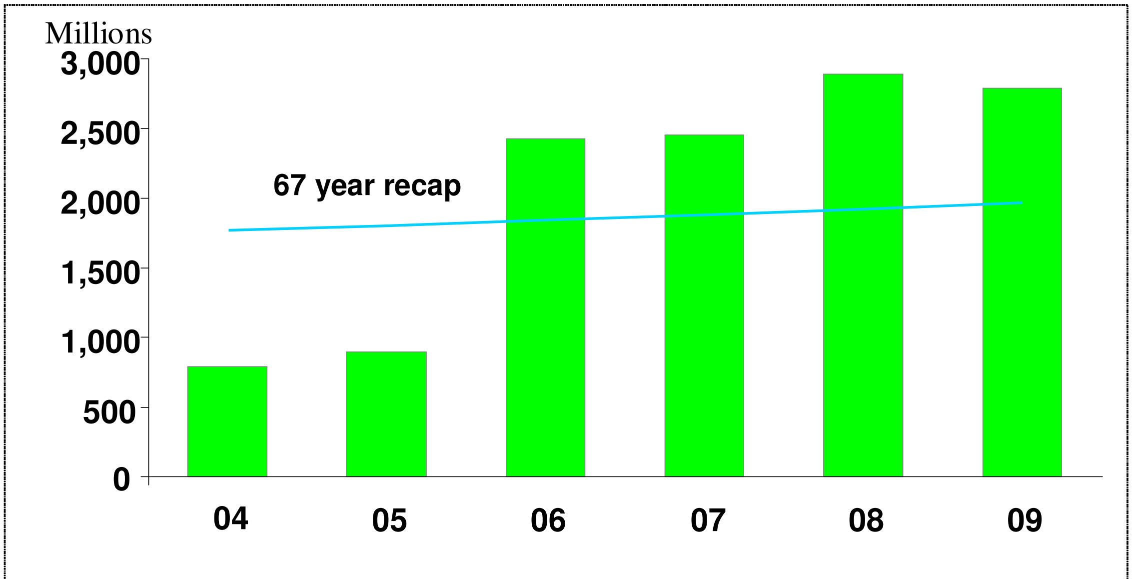

Figure 1 – FY2004 Future Year Defense Program Funding Projection
(AF/ILEC, 2002)

1.04 Military Construction Program Issues. Increasing the MILCON program's funding is an important first step toward resolving installation readiness and recapitalization shortfalls. The underlying assumption in the FYDP funding levels is that 100 percent of the projects selected for accomplishment will contribute to the DoD goals of eliminating facility class deficiencies and preventing further deterioration of the infrastructure. However, this assumption is not always true. For example, the total amount of funds projected for the next 6 years (FY2004-2009) totals about $12 billion. Although this is $2 billion more than the $10 billion requirement identified in the Installations' Readiness Report, only $6.7 billion will go towards the elimination of C-3 and C-4 deficiencies. Based on these FYDP projections, the Air Force will be $3.3 billion short of eliminating C-3 and C-4 deficiencies with only 1 year left to achieve the 2010 goal.

Unfortunately, the solution to this shortfall is not as simple as adding $3.3 billion to the FYDP. The projects in FY2004 and FY2005 are prioritized based on the Air Force's MILCON prioritization model. However, the projects in FY2006 through FY2009 are based on a fair share allocation method for the Air Force's major commands. Therefore, the projects in these years are simply placeholders and are likely to change over the ensuing years. Consequently, the focus should be on the MILCON prioritization model and its ability to prioritize projects based on the DoD goals.

To further illustrate the link between facility class deficiencies and the MILCON prioritization model, consider that the FY2003 program submitted to Congress last year totaled $761 million, of which $540 million was targeted to alleviate C-3 and C-4 facility class deficiencies for an efficiency rate of 71 percent (FY2003 MILCON Program, 2001). The FY2004 and FY2005 programs have targeted efficiencies of 68 and 46 percent, respectively (FY2004 MILCON FYDP, 2002). Furthermore, about 75 percent of the FY2004 and FY2005 programs are for new facility (i.e., "footprint") projects. In other words, these programs represent a growth in the Air Force's plant value and not sustainment and modernization as emphasized by the DoD recapitalization rate goal. On the contrary, additional facilities increase the level of investment needed to attain the 67-year recapitalization rate. These statistics indicate that there may be possible problems with the MILCON prioritization model's ability to meet the facility investment goals of the DoD and Air Force.

1.05 Military Construction Scoring Model. Until FY1998, the MILCON program was decentralized among the major commands (MAJCOMs), who were allocated a fair-share portion of the MILCON program that they could use to fund

projects they considered the most important in their command. Since each MAJCOM followed its own funding philosophy, some commands emphasized quality of life while others focused only on operational requirements. As MILCON resources diminished during the early 1990s, the Air Force leadership identified the need for a common funding philosophy because of two problems with the decentralized system: 1) difficulties in addressing cross-functional issues and 2) the lack of an identifiable point of contact for specific products and services (Air Force Fact Sheet, 1995). To address these problems, the Air Force centralized the MILCON program and directed the Air Force Civil Engineer to develop a MILCON prioritization model.

The MILCON model considers four major emphasis areas: the MAJCOM commander's priority, the investment strategy scoring matrix (or mission matrix), corporate panel input, and MILCON integrated process team factors. The maximum points a project can receive is 100, with overseas projects receiving an additional 2 points for a maximum of 102 points. The majority of points are assigned to the MAJCOM commander's priority (maximum of 60 points) and the mission matrix (maximum of 35 points). Each command's top priority project receives 60 points for the MAJCOM commander's priority area. Subsequent projects receive fewer points as a function of the priority and the command's plant replacement value (PRV) or size of command. Additionally, the mission matrix points range from 35 to 29.5 and are awarded primarily on mission impact (critical, degraded, or enhancements) and then by category (force structure, readiness, people, and infrastructure). Within the limitations of the existing MILCON model, a project's funding success depends primarily on its priority, command size, mission impact, and mission category. Although the MILCON model is the

designated tool for selecting Air Force MILCON projects, projects are increasingly being funded as corporate adjustments. Corporate adjustments are special interest projects inserted into the program and not subject to scoring by the MILCON model.

1.06 Corporate Structure Project Insertions. A limited number of insertions are to be expected since decision models are inherently imperfect and serve primarily to assist the decision maker. For example, a project may score high in the model but not be viewed as important by the decision maker. Conversely, a project that scores low may be of particular interest to the decision maker and may be inserted as a corporate adjustment. For the first program scored by the MILCON model (FY1998), corporate adjustments comprised 5 percent of the program. This number has steadily increased over the years, with 95 percent of the projects in the FY2004 and FY2005 programs being corporate adjustments. This is an indication that the model is no longer satisfying the Air Force's strategic objectives as stated in the FY1998-FY2005 Integrated Priority Lists. The practice of funding projects outside the MILCON model raises questions about the corporate leadership's confidence in the model's ability to meet organizational objectives, including its ability to achieve the DoD's goals for installation readiness and recapitalization. Therefore, the model should be explicitly evaluated for its ability in targeting C-3 and C-4 facility class deficiencies.

1.1 Problem Statement and Context

Continued Congressional support for restoration and modernization funds is contingent on the Air Force's ability to show improvements in facility class deficiencies. In other words, DoD and Congressional support for additional restoration and

modernization funding is likely to decline if the Air Force cannot show adequate progress in fixing the infrastructure problems. However, the current MILCON prioritization model does not have any scoring variables directly related to C-3 and C-4 requirements. Therefore, it is imperative that the ratings submitted in the Installations' Readiness Report and the model have a more direct linkage that ensures progress in eliminating C-3 and C-4 facility class deficiencies. Alternatively, the current trend of corporate adjustments indicates increasingly more corporate structure involvement in developing the MILCON program project by project.

1.2 Research Objectives

To overcome the problems identified above, this research attempts to propose a new model. To be effective, this new model must address some fundamental limitations placed on the MILCON program by the corporate structure. First, it must be flexible and adapt well to constrained and unconstrained funding environments. Second, it must allow for the insertion of corporate adjustments. Third, it must be technologically feasible to develop and use. Finally, it must address the need for long-term master plan programs such as airfield obstructions, dormitories, fitness centers, child development centers, etc. With this in mind, the following three objectives are the cornerstones for developing a proposed MILCON prioritization model that can more effectively achieve the DoD and Air Force leaderships' goals.

1) Understand how the current MILCON model system performs with regard to the DoD goal of eliminating C-3 and C-4 facility requirements. The system behavior will be studied over a 25-year period.

2) Uncover and organize the Air Force's facility investment objectives as currently published in doctrine, policy, and understood by the major command programmers. The resulting hierarchy of values will provide the structure for a proposed MILCON model that supports DoD and Air Force program goals.
3) Discover enabling MILCON program policies that will ensure a successful facility investment strategy.

1.3 Methodology

This research effort combines two different research methodologies, system dynamics and decision analysis, into a complementary approach. System dynamics (SD) involves the study of complex systems and is based on nonlinear dynamics and feedback (Sterman, 2000). It is used to help gain insight into the behavior of a system resulting from causal impacts within the system over a specific time horizon (Meadows, 1980). Conversely, decision analysis (DA), and more specifically value focused thinking (VFT), enables a decision maker to make sense of multiple competing objectives and make the required tradeoffs within a value framework (Kirkwood, 1997). System dynamics, unlike VFT, is not suited for prioritizing projects. On the other hand, VFT, unlike SD, does not account for system behavior and causal effects over time. Thus, these two methodologies differ fundamentally and are not commonly used together. However, each methodology plays an important part in understanding and creating the most successful model for both the near and long term.

This research was conducted in four phases to ensure strict delineations between the two methodologies, with an emphasis on the proper and accepted application of each

method. The first phase involved a system dynamics analysis of the current MILCON model to identify entities in the system that contribute to, and are anticipated in the future to contribute to, positive or negative model behavior. The insights gained from analyzing the current model assisted in the development of a proposed model. During the second phase, existing DoD and Air Force doctrine, policy directives, and guidance were reviewed using content analysis to develop an initial value hierarchy. This approach is commonly referred to as the "gold standard." Additionally, this initial hierarchy was reviewed by, and inputs were solicited from, several subject matter experts at the Air Staff, MAJCOM, and installation levels. Their review served as a check for adequacy, feasibility, and completeness. Although a formal validation of the hierarchy was not conducted, the subject matter expert review helped put the values taken from doctrine into proper context. The value hierarchy was further adjusted to incorporate insights gained from the system dynamics analysis of the system. This produced a tentative multi-objective model that accounts for the values primarily identified in the Air Force Facility Investment Plan. The third phase involved testing the proposed model using system dynamics and evaluating the impacts of constraints and policies necessary for the overall success of the system. Finally, phase four involved comparing the current and proposed MILCON models' impacts on eliminating C-3 and C-4 facility class deficiencies.

Chapter 2. Literature Review

2.0 Overview

This chapter provides the reader information on the origin of Air Force facility investment goals, the Air Force budgeting process, the military construction program, some private industry capital budgeting techniques, multi-criteria decision-making, and system dynamics. Although volumes could be written on any one of these areas, this chapter only covers basic background information. The intent of this chapter is to 1) provide the essential elements of each of these areas to show their relevance and 2) ground the research effort within the research community as a whole.

2.1 Quadrennial Defense Review

The National Defense Authorization Act of 1996 mandated a Quadrennial Defense Review (QDR) every 4 years. The QDR is a "comprehensive examination of defense strategy, the force structure of the active, guard, and reserve components, force modernization plans, infrastructure, and other elements of the defense program and policies in order to determine and express the defense strategy of the United States" (P.L. 104-201). The 2001 QDR highlighted the growing problem of a degraded defense infrastructure and its impact on military readiness. The review concluded that chronic underfunding and neglect caused the degradation (QDR, 2001). Consequently, the Department of Defense (DoD) placed an emphasis on restoring the defense infrastructure. As the platforms for military weapon systems, the infrastructure plays a vital role in the defense of the nation (OSD Posture Statement, 2001).

The DoD's plan to improve the defense infrastructure includes resizing and modernizing installations. The Efficient Facilities Initiative (EFI), recently approved by Congress for fiscal year (FY) 2005, will study defense installations and recommend realignment and closure to reduce excess infrastructure. Modernization, on the other hand, will be achieved through a combination of increased and more efficient use of resources (DoD Annual Report, 2002).

The Office of the Secretary of Defense's long-term plan to achieve its infrastructure goals is the Facilities Strategic Plan and its four major goals: 1) Right Size and Right Place, 2) Right Quality, 3) Right Resources, and 4) Right Tools/Metrics (DoD Annual Report, 2002). The Right Size and Right Place goal will primarily be achieved through the EFI and the elimination of excess infrastructure, which accounts for 20-25 percent of the existing infrastructure. The Right Quality goal stresses the importance of establishing and maintaining the highest facility standards, recognizing that high facility standards improve both readiness and personnel retention. The Right Resources goal addresses the need to increase infrastructure funding, explore opportunities to share infrastructure across the services, and "create more effective money." Finally, the Right Tools/Metrics goal explains the need to establish good facility management and business practices (OSD Posture Statement, 2001). Tools used by the DoD to measure infrastructure readiness include the Installations' Readiness Rating System (IRRS), the Facility Recapitalization Metric (FRM), and the Facility Sustainment Metric (FSM). The IRRS and FRM are relevant to Air Force military construction while the FSM deals with facility operations and maintenance.

2.2 Installations' Readiness Rating System

In accordance with Section 117 of Title 10, United States Code, the purpose of the Installations' Readiness Rating System (IRRS) is to provide objective and timely information to Congress, the Department of Defense, and the Air Force, on the capability of our facilities and infrastructure to support forces in the conduct of their missions (Facility Investment Plan, 2002). The IRRS is based on the same premise as private industry's use of the Facility Condition Index (FCI) to evaluate facility condition. The programmed amount of validated requirements in a given facility class is divided by the plant replacement value for that class. The resulting percentage is converted to one of four categories called C-ratings. The Air Force uses the IRRS to report C-ratings for the following nine facility classes (Installations' Readiness Reporting Instructions, 2002).

1. Operations and Training (e.g., airfields, training ranges, class rooms, aircraft parking, refueling hydrants, flight simulators)

2. Mobility (e.g., facilities directly related to mobilization of forces, including staging areas and transportation systems)

3. Maintenance and Production (e.g., vehicle and avionics maintenance shops, tactical equipment shops, aircraft maintenance hangars)

4. Research, Development, Testing, and Evaluation (e.g., test chambers, laboratories, research buildings)

5. Supply (e.g., warehouses, hazardous material storage, ammunition storage)

6. Medical (e.g., hospitals, medical and dental clinics)

7. Administrative (e.g., office space, computer facilities)

8. Community and Housing

9. Utilities and Ground Improvements (e.g., power production and distribution, water and wastewater systems, roads and bridges, fuel storage tanks)

There are two potential shortcomings with the IRRS. First, facility requirements may be either over or under stated. This results in an inaccurate facility class C-rating. Second, there is no direct correlation between a facility condition's impact on the mission and the total facility class monetary requirements. For example, the cost to replace a mission critical facility such as an airfield control tower may not be a substantial percent of the total PRV for the operations and training facility class. The resulting C-rating would inaccurately reflect the true nature of the problem. The IRRS accounts for this situation by allowing the commander to adjust the rating to reflect the true facility readiness of the installation. In other words, the quantitative rating can be qualitatively increased or decreased based on the commander's assessment of actual impact on the mission. The possibility of over or under stating a requirement remains an important concern if these ratings are to be used for resource allocation.

Ratings of C-1 and C-2 represent facility conditions posing negligible and minor impacts to the mission. Conversely, C-3 and C-4 ratings represent facility conditions causing significant and critical impacts to the mission. Validated requirements within the IRRS assessment may be funded through military construction (MILCON), operations and maintenance, and other sourced programs. In the Air Force's FY2001 report, 63 percent of the facility class ratings reported by the major commands (MAJCOM) were either C-3 or C-4. MILCON requirements accounted for 56 percent of the $18 billion required to improve these facility classes to C-2 (FY2001 IRR database, 2002). The $10 billion in MILCON requirements are spread across the facility classes as shown in Figure 2. (Note: The figure shows dormitories split out separately from community support because of senior leadership special interest. Housing and medical facility classes are not

included in this chart because they are not funded through the regular MILCON program.)

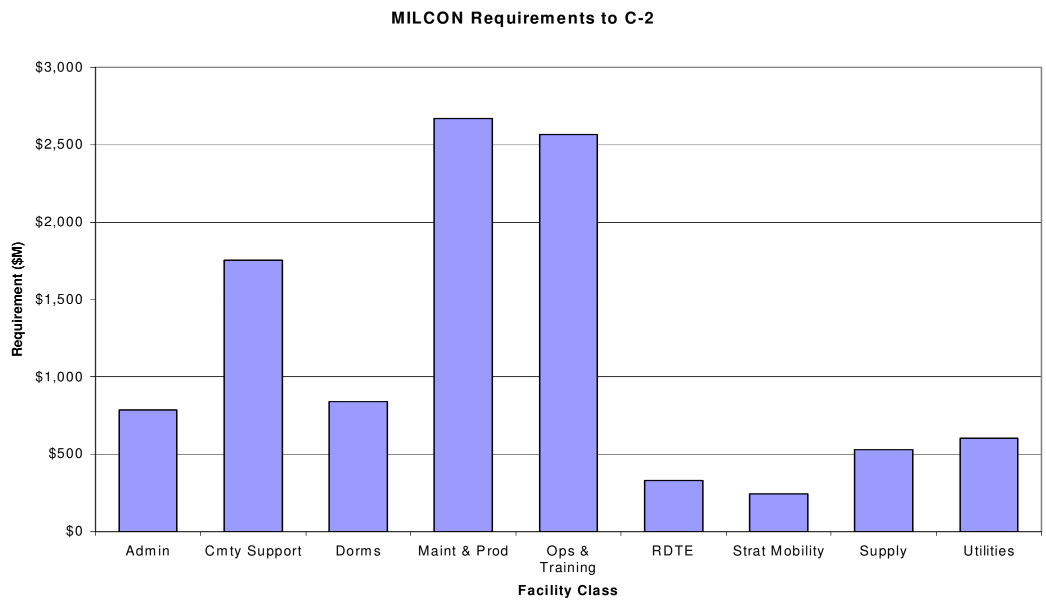

Figure 2 – MILCON Requirements to Attain C-2
(IRR Database, 2001)

2.3 Facility Recapitalization Metric

In addition to the Installations' Readiness Rating System, the Facility Recapitalization Metric (FRM) is used by the DoD to assess the condition of defense facilities. Recapitalization involves modernizing and restoring aged facilities through replacement and restoration to ensure they remain capable of supporting current missions (Facilities Recapitalization Metric, 2002). The recapitalization rate metric is calculated by dividing the pertinent plant replacement value (PRV) by the level of investment. The plant replacement value is the current year cost to replace most facilities. Strategic missile launch sites, housing, one-time use structures, and buildings identified for

disposal are examples of facilities not included in the PRV. The recapitalization rate is calculated for each fiscal year and includes funding from both MILCON and operations and maintenance (O&M) sources. Prior to the FY2002 MILCON program, the Air Force's MILCON recapitalization rate was in excess of 150 years. The average recapitalization rate for private industry is 50 years (QDR, 2001; OSD Posture Statement, 2001). A weakness of the FRM metric is its assumption that facility age is a direct indicator of facility condition. Although facility age is a generally accepted industry measure for condition, facility condition is more accurately a function of several factors such as age, climate, quality of materials, and function. For the purposes of this research, however, facility age will be accepted as a proxy for facility condition. The IRRS and FRM are the two primary methods for assessing the condition of the service's facility infrastructure. The Air Force developed the Air Force Facility Investment Plan as a guide to restoration of degraded facilities and adopted IRRS and FRM as key metrics.

2.4 Facilities Investment Plan

The Facilities Investment Plan (FIP), approved in August 2002, captures facility goals and objectives from several DoD and Air Force doctrine, plans, and policy guides. The FIP contains seven facility investment goals covering restoration, modernization, and sustainment for its MILCON, housing, and O&M facility programs. According to the plan, MILCON is the primary program for recapitalization and deficit construction. The plan emphasizes the DoD's goals of improving C-3 and C-4 rated facility classes and achieving a 67-year recapitalization rate. The plan does not outline any changes to project selection variables in the MILCON prioritization model. The plan simply

suggests that commanders focus on facility classes rated as either C-3 or C-4. The primary strategy for achieving the goal is an increase in funding to achieve the goals by 2010 (Facility Investment Plan, 2002). Increased funding would mean a change of past funding practices within the Planning, Programming, and Budgeting System (PPBS). To illustrate this, during the Reagan years the military construction budget peaked at $1.9 billion, $1 billion less than the projected budget amount for FY2008 of $2.9 billion (USAF/ILE Funding Profile, 2002; FY04 FYDP, 2002). Furthermore, Figure 3 shows the military construction budgets from FY 1998 to FY 2003. Their average was less than $700M per year (AF/ILE, Aug 2002).

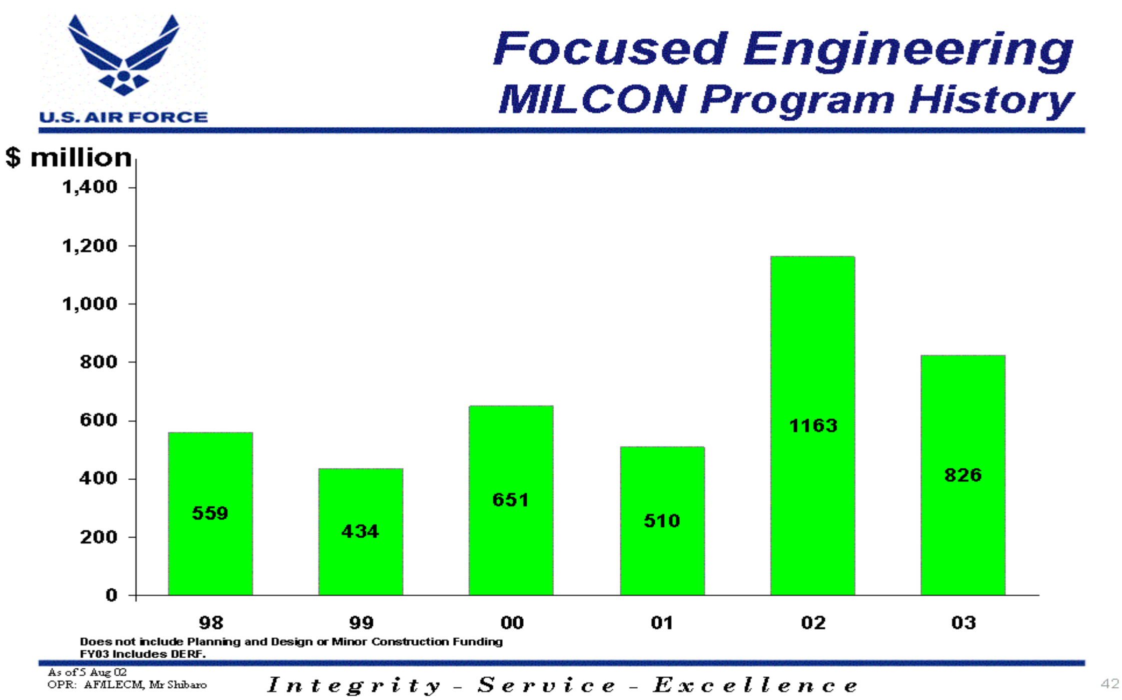

Figure 3 – MILCON Program History FY1998 to FY2003
(AF/ILE Metrics, Aug 2002)

2.5 Planning, Programming, and Budgeting System (PPBS)

The PPBS was introduced in 1967 by Secretary of Defense Robert McNamara to shift the DoD's view of budgeting from a 1-year to 5-year focus (training slides, ppbsblock2.ppt). The Air Force budgeting system operates within the confines of the PPBS, which consists of a 15-month cycle as shown in Figure 4. Air Force planners develop current and future year budgets for the major force programs based on requirements provided in guidance from the unified and specified component commanders and formalized in the annual planning and programming guidance (APPG) document. This Program Objective Memorandum (POM) provides the initial estimates that each program element manager (PEM) uses to formulate a workable budget that meets the needs of the component commanders. The Program Review and Budget Estimate Submission (BES) further refine the Air Force budget as the financial experts begin their final review.

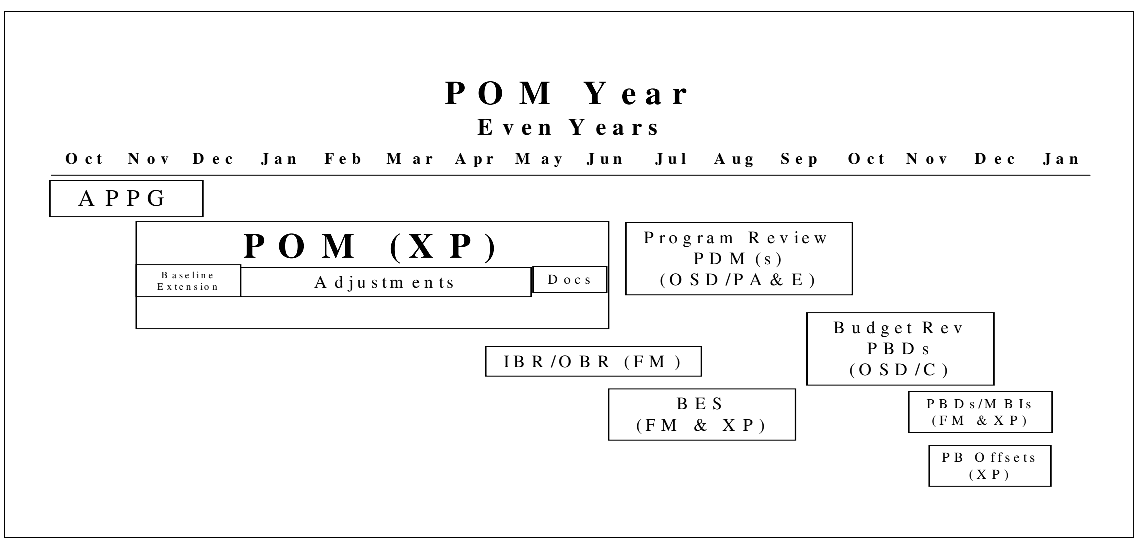

Figure 4 – Air Force Budget Cycle
(PPBS Primer, 1999)

Until recently, the POM and the BES were separate processes. However, the 2001 QDR established the Program Budget Review (PBR) to combine the POM and BES processes into one integrated process (QDR, 2001). Each program element manager controls one or more program element codes (PECs), which are the accounting mechanisms used to track funds expenditures (PPBS Primer, 1999). The MILCON projects are assigned PECs based on the program the project supports. This lack of a separate PEC for MILCON projects is a key reason why MILCON funding levels fluctuate throughout the PPBS. Historically, the MILCON program has been an easy target when funds were needed to support other critical budget programs, such as weapon systems and military pay. This practice led to a systemic under funding of infrastructure projects.

The PBR ends with the submission of the Air Force budget to the DoD. The DoD balances the programs from all the services into a consolidated defense budget. During this process, it is not uncommon for funding to be added or removed from programs to meet overall budget needs. The final step in the process, called the Program Budget Decision (PBD) cycle, is a line item review of all defense programs. Increases to the MILCON program during the PBD cycle can occur; however, budget reductions are equally likely. The program was increased by almost $700 million in FY2002 to target restoration and modernization of Air Force infrastructure and thereby meet a DoD objective to improve the DoD recapitalization rate (OSD Posture Statement, 2001; FY2002 MILCON program, 2001).

2.6 Air Force Doctrine, Policy, and Guidance

The Air Force strategic plan, the top-level policy guidance within the service, is based on the DoD's joint vision doctrine. The Air Force Civil Engineer's strategic plan provides further details about the top-level visions, doctrines, plans, and policies; it communicates the core competencies that the civil engineer "brings to the fight." These core competencies include installation engineering, expeditionary engineering, environmental leadership, housing excellence, and emergency services. Of particular interest to this research is installation engineering, which includes capabilities related to real property maintenance, operations, planning and construction, competitive sourcing, and privatization and divestiture (CE Strategic Plan Volume 1, 2000). Installation engineering is achieved through just about everything a civil engineering squadron does at a base. Furthermore, the military construction program is a key ingredient in demonstrating this core competency. Specifically, the construction program provides quality installations for new missions, force structure realignments, infrastructure investment, and physical plant replacement (CE Strategic Plan Volume 1, 2000: 27-28).

2.7 Military Construction Program

2.7.1 Background. To properly evaluate the current MILCON model, it is important to understand the preceding system and gain insight into the overall MILCON program. Prior to the centralized MILCON program (pre-FY1996), the Air Force distributed it funds to its major commands (MAJCOMs) in the form of total obligation authority (TOA). TOA is the term used to refer to the budgeted amount of money an organization has available for conducting its operations. Each MAJCOM was given a

TOA based on its operational and support needs. This amount was then subdivided among the various activities such as flying, equipment, personnel, spare parts, infrastructure support, and MILCON among others. Each MAJCOM had the latitude to divide its TOA as necessary to accomplish the mission. For example, a MAJCOM commander had the prerogative of reallocating money for flying hours to or from the MILCON funding stream.

This decentralized system allowed better control of fiscal constraints by MAJCOM commanders. Commanders knew their needs and could make the necessary tradeoffs to accomplish their missions. One year the MILCON program might need a quick infusion of funds, while the next year the commander might need the dollars for spare parts, flying hours, or other requirements. However, shrinking defense budgets in the 1990s, difficulties in addressing cross-functional issues, and the lack of an identifiable point of contact for specific products and services persuaded the Air Force leadership to centralize the program within the enhanced corporate structure (Air Force Fact Sheet, 1995).

The enhanced corporate structure established cross-functional Integrated Process Teams (IPT) as the single points of contact for some products and services. The Civil Engineer chairs the MILCON Model IPT which is responsible for developing and recommending an Air Force MILCON program. The IPT uses a MILCON scoring model to prioritize and recommend projects for funding to the Air Force leadership.

2.7.2 Military Construction Scoring Methodology. Valuable insight into the desired outcomes of the current model can be gathered from the relative weighting of the model's four rating areas: MAJCOM priority (60 points), Investment Strategy Scoring

Matrix (ISSM)(35 points), Corporate Panel Points (2 points), and MILCON IPT Factors (5 points). The most points most projects can receive is 100; however, overseas projects receive two additional bonus points for a maximum of 102 points. It is clear that the current model places a very large value on the MAJCOM commander's priority.

Table 1 – Investment Strategy Scoring Matrix (ISSM)

	Force Structure	Readiness	People	Infrastructure
Critical	35	34.5	34	33.5
Significant	33	32.5	32	31.5
Enhancement	31	30.5	30	29.5

Furthermore, the ISSM weighting of 35 indicates that the Air Force places substantial value on how a project fits into the Air Force's overall priorities as defined by the scoring matrix. Specifically, modernization and force structure changes that have critical mission impact garner the maximum score of 35 while infrastructure with minimum mission impact receives 29.5 points (Facilities Investment Plan, 2002). This represents a 16 percent reduction in points between the two categories. Does a 16 percent difference represent the Air Force leadership's true value gap between critical new mission/force structure and non-critical infrastructure requirements? Plant replacement value (PRV) is a holdover of the prevailing "fair-share" mentality that remains ingrained in the current system. The premise behind using PRV for allocation supposes that larger installations with more existing infrastructure require more funding to recapitalize this infrastructure. Many organizations commonly use this approach when estimating repair and maintenance budgets (Ottoman, 1997). This thinking, however, is unsound in terms of capital investment. In private industry, most decision makers base capital investment

on a complex process that stresses strategic analysis (Farragher and Kleiman, 1999). The PRV percent, on the other hand, does not address achieving Air Force strategic goals.

As a project prioritization factor, PRV is independent of the dollars actually invested in a MAJCOM. Therefore, the higher a MAJCOM's PRV, the more projects the MAJCOM will receive. However, simply increasing the number of projects that a MAJCOM gets funded does not address the fundamental issue of which facility classes the funding is allocated to and how much each one is allocated. The MILCON model is only designed to prioritize projects; it does not allocate levels of funding to specific facility classes or target specific bases within each MAJCOM where the funding is actually required.

Ideally, the Investment Strategy Scoring Matrix would ensure, in terms of the Air Force's long-term facility investment strategy, the proper projects are being funded. However, that is not always the case. For example, consider two projects receiving equal points for the corporate panel points and the IPT factors. An inconsistency in the MILCON model becomes evident when comparing a hypothetical project from the largest command, Air Force Materiel Command (AFMC), with one from Air Education and Training Command (AETC); half the size of AFMC. Suppose the two projects in question have equal priorities as assigned by their respective MAJCOM commanders (in this case priority 4). Table 2 shows the category and total scores. As the table indicates, the AFMC project scores higher because it gets more points for MAJCOM priority based on PRV weighting.

Table 2 – Current MILCON Model Point Comparison

			Points				Total Points
Project	MAJCOM	Priority	MAJCOM Priority	ISSM	Corporate Panel	IPT	
Project 1	AFMC	4	51.7	35	2	3	91.7
Project 2	AETC	4	40	35	2	3	80

It seems to make sense that for projects that are otherwise the same, the project from the larger command scores higher because the command has more recapitalization requirements. However, suppose the scores change as shown in Table 3. In this case, the smaller command submitted a critical force structure project that gets full points from the Investment Strategy Scoring Matrix. A force structure project is an "Air Force directed or endorsed change in mission or force structure across bases or significant, directed mission expansion" (Facilities Investment Plan, 2002:20). On the other hand, the larger command hypothetically submitted an infrastructure enhancement project that gets the least possible points from the Investment Strategy Scoring Matrix. An infrastructure project includes "Support facilities and other infrastructure for daily operations" (Facilities Investment Plan, 2002:20). Despite the cross-cutting Air Force importance of the smaller command's project, the project from the larger command still outscores the smaller command based on its PRV alone. This apparent inconsistency between achieving Air Force capital investment goals and allocating funding on a fair-share basis leads some commands to seek relief through corporate adjustments.

Table 3 – Current MILCON Model Adjusted Point Comparison

			Points				Total Points
Project	MAJCOM	Priority	MAJCOM Priority	ISSM	Corporate Panel	IPT	
Project 3	AFMC	4	51.7	29.5	2	3	86.2
Project 4	AETC	4	40	35	2	3	80

Although the Investment Strategy Scoring Matrix should help target facility investment along the Air Force's priorities, it is clear from the preceding example that this is not always the case. Instead, the commander's priority and the MAJCOM PRV are the two single most important factors in the current MILCON model in targeting facility investment. Therefore, the ability of the current MILCON prioritization model to target deficient facility classes is questionable. However, the commander's priority can be very effective if commanders prioritize their MILCON lists based on their installation readiness reports. A critical problem with the current MILCON model is the impact of Fact-of-Life projects, corporate adjustments, and special multi-year program wedges; these categories of projects now account for nearly 95 percent of the available FY2004 MILCON program funding. Consequently, the MILCON scoring model prioritized projects in competition for only 5 percent of the MILCON funds.

2.7.3 Fact-of-Life Projects. Fact-of-life (FOL) projects are those projects that must be funded and are not scored with the MILCON model. FOL projects include those dictated by treaty, law, or operating necessity. For example, planning and design funds are considered FOL because they must be funded to prepare the next two years' project designs. FOL projects typically account for 15 to 20 percent of the MILCON program (FY2004 and FY2005 MILCON List, 2002; Facilities Investment Plan, 2002).

2.7.4 Corporate Adjustments. A corporate adjustment is an adjustment made to the program by the corporate structure and approved by the Air Force Chief of Staff. Corporate adjustments typically include projects that must be funded in the current year to preclude severe mission impact or projects of special interest to the Air Force. Any change to the current-year prioritized project list that supercedes the scoring model's priorities is classified as a corporate adjustment. The number of corporate adjustments has steadily increased since the inception of the MILCON scoring model as shown in Figure 5. In addition to corporate adjustments, multi-year plans such as the Dormitory Master Plan and the DoD's Quality of Life Enhancement Plan are not scored with the MILCON model but are included as a "wedge" (or set-aside) in the MILCON program.

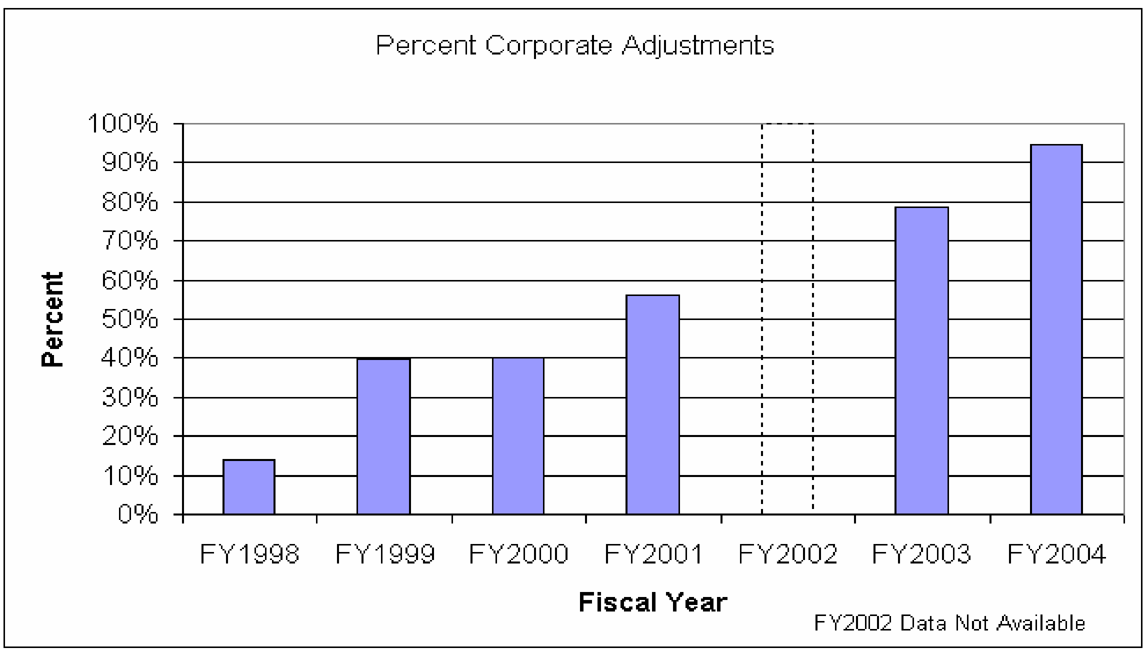

Figure 5 – Corporate Adjustment Percents FY1998 to FY2004
(AF/ILE, 2002)

2.7.5 Special Multi-Year Programs. One of the biggest challenges for the Air Force during the past decade has been the retention of its personnel. The multi-year Dormitory Master Plan, established to improve the standard of living for airmen living in dormitories, was created in 1998 to safeguard dormitory investment from funding shortfalls. The plan involves three phases: conversion of central latrine dormitories, construction of new dormitories to address room deficits, and an upgrade of existing dormitories to meet new standards (Robbins Testimony, 2001). The plan involves wedges of approximately $100 million annually through FY2009. The dormitory wedge accounted for about 12 percent of the MILCON program in FY2004 and FY2005.

2.8 Capital Budgeting

2.8.1 Private Industry. Most literature on the subject of capital investment decisions is covered under the broader topic of capital budgeting. The most common capital budgeting method used by companies is some form of discount method (Klammer et al, 1991). The two most popular discount methods are net present value (NPV) and internal rate of return (IRR). These are referred to as "discounted methods" since they account for the time value of money in their calculation. Two less commonly used methods are payback and accounting rate of return.

The NPV calculates the net value of an investment by subtracting the initial investment amount from the present value of future cash inflows. The present value of the cash inflows is the current value of money given a desired interest rate (Blocher, 2002:481). This allows the decision maker to compare future benefits from an investment to an equal cash value as the present expenditure. The decision to pursue the

investment is as simple as subtracting the cost of the investment from the present value of the future benefits. A positive value represents a gain to the organization. The inherent difficulty in the NPV method is selecting an interest rate that is representative of actual conditions; otherwise, the basis for the decision is invalid (Kerr website, 1997). The IRR is similar to the NPV except the object is to determine the interest rate at which the NPV changes from negative to positive (i.e., the interest rate required to make a decision profitable).

A third method used primarily by smaller firms is payback. It is a simple calculation of the number of required years before the investment pays for itself. A shorter payback period represents a better decision. Small firms, although increasingly using the discount methods, traditionally have used payback because of its simplicity (Bhandari, 1986; Block, 1997). The emergence of the personal computer and the availability of powerful computing capabilities to even the smallest of firms has been a major contributor to the switch to discount methods (Pike, 1996; Drury & Tayles, 1997). A fourth method is the accounting rate of return (ARR). This method takes the projected cash inflows and subtracts depreciation. The result is then divided by the initial cost of the investment. Neither the payback nor ARR method include the time value of money.

Many studies have been conducted to determine the most prevalent method used in making capital investment decisions. Although several (Farragher and Kleiman, 1999; Pike, 1996) indicate that most companies use discount methods, Arnold and Hatzopoulos (2000) report that firms are using combinations of all four methods. Their study of firms in the United Kingdom found that 29 percent use a combination of all four methods, 38 percent use some combination involving three methods, and 23 percent use a

combination involving two methods. Their results supported earlier surveys conducted in 1980, 1984, and 1988 as reported in Klammer et al. (1991) that discounting was the most commonly used technique with many firms using multiple techniques. Beyond the four quantifiable methods used by most firms when making capital investment decisions, firms are increasingly taking an options approach to their capital investment decisions.

The options approach is based on the premise that investment opportunities are options not obligations. Many times, decision-makers are faced with a capital investment decision and forget that they have the option to delay. Traditional business thinking also drives the notion that a decision can be reversed in the future – this is not always true and often leads to quick decisions since there is an assumption that the risk is low.

The options approach attempts to directly address the risk a decision by looking beyond the pure numbers such as NPV calculations. As its name implies, the intent of the method is to look at all available options with the goal being to remove as much risk from the decision-making process as possible. The risk associated with most decisions is the uncertain nature of the future. Additionally, the options approach allows the decision-maker to put the investment decision in the context of time. The options to invest now, next year, or sometime in the future provides flexibility in selecting the right timing to reduce uncertainty. The end effect is a better decision (Stark, 2000). The options approach also speaks to capital investment decisions that lend themselves to being accomplished in stages. Although a project may appear to lack profitability, viewing the opportunity from a multi-stage options approach may be beneficial. The project may turn out to be profitable because subsequent decisions can be made after uncertainty has been resolved and the decision maker has a better idea of the outcome.

Therefore, the options approach is highly valuable in mitigating risk associated with multi-stage projects (Herath & Park, 2002).

Some of the factors that decision makers encounter include risk, uncertainty, information asymmetry, and size of the company. All decisions inherently have a quality of risk and uncertainty. The term capital investment implies that some amount of capital, or money, is to be allotted to the specific decision. This capital could be used otherwise to create value; therefore, the decision maker is assuming some level of risk when deciding on a given investment. Information asymmetry is a major concern of the decision making process. Inconsistent information regarding a decision across different levels of an organization often accounts for less than optimal decisions. It is also a cause for senior managers to abandon traditional techniques and use gut instincts. Furthermore, the six of the firm affects the decision process. A large firm is able to assume more risk than a small firm. Smaller firms are primarily limited by their capital assets and rely heavily on outside financing to implement capital investments. A small firm's failure with a capital investment project could result in its demise. A larger firm, on the other hand, can shoulder more risk since they are less likely to be affected by the failure of a single capital investment project (Block, 1997:290).

2.8.2 Public Sector. Public organizations predominantly use the benefit-cost analysis in making capital investment decisions. A benefit-cost analysis relies on the comparison of the values associated with the benefits and costs of a project. The use of benefit-cost analysis has increased steadily in recent years because of the desire to put numbers to policy decisions (Bennett, 2000). Unfortunately, it is extremely difficult to place monetary values on some of the costs and benefits associated with public policy.

Although an analyst can easily quantify some costs (e.g., the cost of construction), it is next to impossible to determine others (e.g., non-monetary benefits to a population subset) (Dorfman, 1996). Despite this difficulty, the drive to justify expenditures in terms of a monetary benefit is deeply rooted among policy makers. The Air Force, as a government agency, uses a process similar to the benefit-cost analysis. Additionally, the Air Force uses payback when preparing economic analyses (AFI 65-501, 1994).

2.9 Multi-Objective Decision Making

Good decisions are made to support an organization's strategic objectives (Kirkwood, 1997). In many cases, there are multiple objectives the organization is trying to achieve and tradeoffs are required. Therefore, the goal of multi-objective decision-making is to provide a framework to assist in making decisions that require tradeoffs among competing objectives (Kirkwood, 1997). There are two primary approaches to decision making. The first, and most common, is alternative focused. In alternative focused decision-making, a problem usually drives the need to make a decision. The decision maker generates alternatives in response to the decision problem. A set of objectives or criteria are then considered to evaluate the alternatives and pick the one that best solves the problem. The identified set of alternatives is not rooted in trying to achieve specific organizational objectives and is reactive instead of proactive (Keeney, 1992). The second approach is value focused thinking. The decision maker's values are first explored within the context of the decision. Alternatives are then generated that best fit these values (Keeney, 1992).

For example, suppose an individual's car breaks down. Using the alternative focused thinking approach, the decision-making process involves determining whether to fix the car or buy a new one. Therefore, the individual might develop a list of pros and cons for each alternative and make the decision based on which alternative has the fewest cons or the most pros. Alternative focus thinking, as Keeney (1992) calls it, constrains the decision maker to pick the best alternative among those available. Conversely, value focused thinking first establishes a framework for the decision by clearly and comprehensively identifying the decision maker's value system and establishing a value hierarchy. The individual first decides on the objectives before considering any alternatives. Once the value hierarchy is developed, the decision maker can generate additional alternatives that best satisfy the value system developed from objectives (Leon, 1999; Keeney 1992, 1994). In the car example above, the individual may realize from the value hierarchy that taking the bus is a better alternative. Thus, value focused thinking brings creativity to decisions (Keeney, 1992, 1994).

In a similar way, the MILCON project prioritization process involves making value tradeoffs in order to select the best mix of projects within the available funding level. Choices must be made between new mission requirements, current mission restoration, quality of life enhancements, and other urgent needs. The alternatives are not known in advance and are constantly changing. Therefore, value focused thinking provides a good methodology for selecting MILCON projects that best meet the needs of the Air Force.

2.10 Value Focused Thinking

Shoviak (2001:63) used a 10-step process to guide the decision maker through a value focused decision process as shown in Figure 6. Value focused thinking (VFT) is dependent on soliciting the values of the decision maker and/or major stakeholders affected by the decision (Keeney, 1994). In the case of the MILCON process, the decision maker is the Air Force Chief of Staff. The major stakeholders include the Air Force corporate structure, MAJCOM commanders, and installation commanders. The most effective method for soliciting a decision maker's objectives is through direct interview with the decision maker. However, when access to the decision maker is limited or not available, alternative approaches can be used. One alternative involves questioning a panel of subject matter experts as a group. This group facilitation process is often very effective uncovering the objectives of the decision maker. The group facilitation forum is ideal for uncovering all facets of the decision, single dimension value functions, and/or objective weights. Since the decision maker and stakeholders are commonly unavailable for building the value hierarchy, an alternative approach, called the "gold standard" approach, involves deriving the decision maker and/or stakeholder's objectives and associated value system from existing policy documents (Burk and Parnell, 1997). Regardless of the manner in which the value hierarchy is established, the overall VFT process remains unchanged and is iterative.

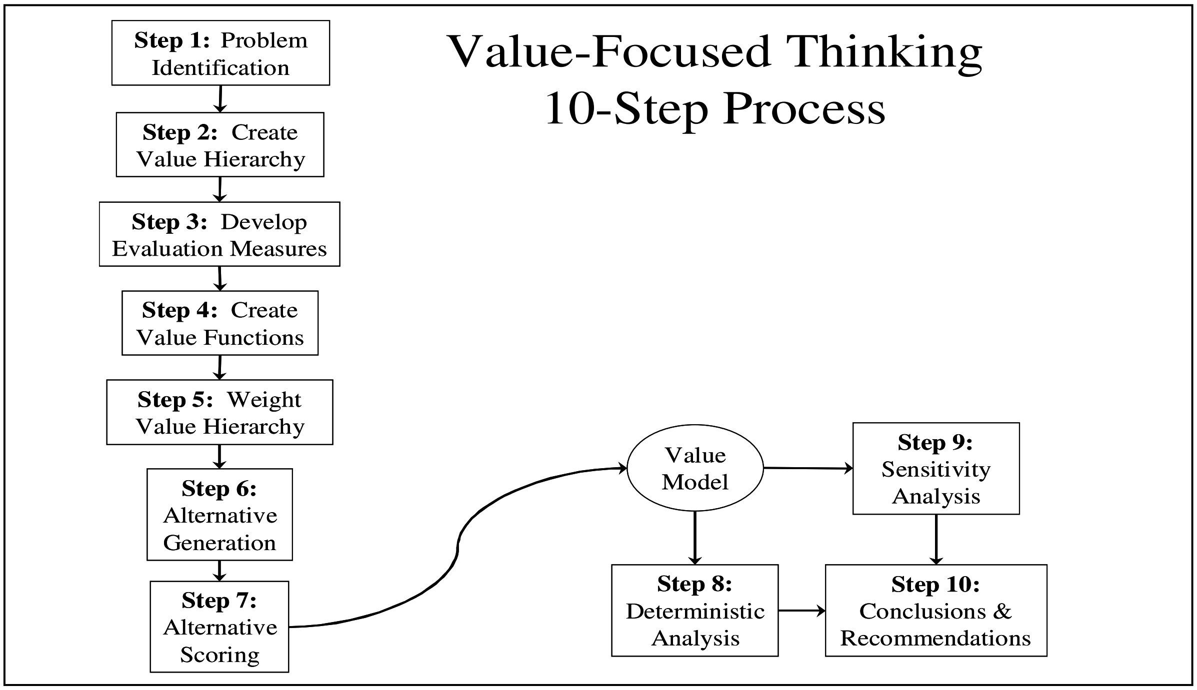

Figure 6 – Value Focused Thinking 10-Step Process
(Shoviak, 2000)

2.10.1 Problem Identification. The most important step in developing a value focused thinking hierarchy, or for that matter any decision context, is properly identifying and framing the problem (Shoviak, 2001:47). The problem for the MILCON prioritization process is, "Which facility projects will best support the Air Force mission?"

2.10.2 Creating the Value Hierarchy. A value hierarchy is a structural representation of the values important to the decision maker within the context of the decision in question. The hierarchy consists of tiers and branches. Each tier contains objectives that support the objective immediately above it, with the first tier directly supporting the fundamental objective of the decision at hand. The objectives within each tier are both collectively exhaustive and mutually exclusive. In other words, one would

consider the objectives collectively exhaustive if on any given tier, the objectives address all values pertinent to the decision. All tiers should be collectively exhaustive; however, the higher tiers address values in a more aggregated manner. Furthermore, the objectives within each tier are considered mutually exclusive (i.e., independent) if they do not overlap in their assessment of the values of the decision. Another common term used for mutually exclusive is decomposable. For instance, Figure 7 shows a generic value hierarchy. The first tier contains Objective A and Objective B. These objectives address all values pertinent to the decision with no overlap; hence, they are collectively exhaustive and mutually exclusive. Similarly, the lower tier (consisting of Objectives A1, A2, B1, and B2) also has these qualities; albeit in a more disaggregated manner.

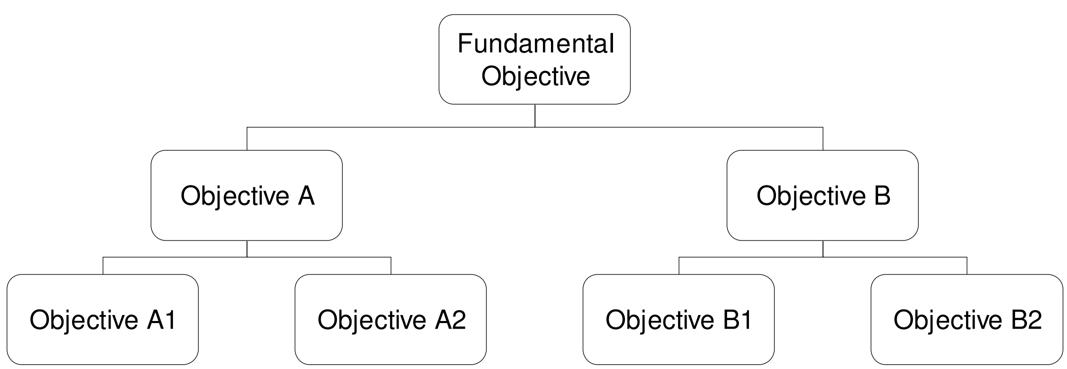

Figure 7 – Generic Value Hierarchy

Each first tier objective may have one or more objectives (also called sub-objectives) beneath it. This forms a branch of the hierarchy. The hierarchy in Figure 7 has two branches. The first branch includes Objectives A, A1, and A2, while the second

branch includes Objectives B, B1, and B2. In the same manner as previously mentioned for the entire hierarchy, objectives on the same tier within a branch are collectively exhaustive and mutually exclusive. For example, Objectives A1 and A2 from Figure 7 fully capture the intent of Objective A with no overlap.

The value hierarchy may be constructed using either a top-down or bottom-up approach. The top-down approach starts with first tier objectives and iteratively refines them until sub-objectives are defined narrowly enough such that measures can be used to assess how well the sub-objectives are achieved (Kirkwood, 1997). This occurs by adding tiers to the hierarchy. A second method for constructing the hierarchy involves a bottom-up approach. This approach is commonly used when the decision maker has a good understanding of the most narrowly defined objectives and measures but would like to structure them into a value system.

2.10.3 Developing Measures. The primary purpose of a value hierarchy is to develop and evaluate alternatives that support the fundamental objective (Kirkwood, 1997). Therefore, measures provide a means for scoring alternatives and allow the value hierarchy to be operationalized. The measures, as shown in Figure 8, quantify attainment of the objectives in the value hierarchy. The objectives on the lowest tier can have multiple measures, but must at least have one measure. There are four general types of measure scales. They include direct natural, direct constructed, proxy natural, and proxy constructed. Direct scales measure objective attainment directly while proxy scales use a related objective to indirectly measure the objective in question (Kirkwood, 1997:24). Furthermore, natural scales are ones that are intuitively understood by most people while constructed scales have been designed specifically for the problem at hand (Kirkwood,

1997:24). In general, direct scales are preferred over proxy scales and natural scales are preferred over constructed scales. Therefore, the most preferred scale is the direct natural while the least preferred is the proxy constructed (Chambal, 2002).

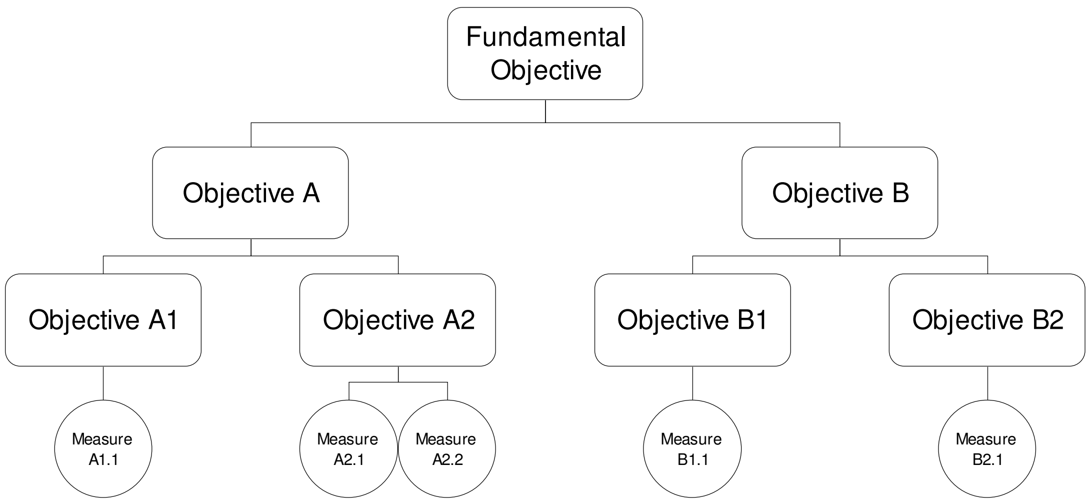

Figure 8 - Generic Value Hierarchy with Measures

2.10.4 Constructing the Value Functions. Value functions serve the purpose of translating measures with dissimilar units into a common unitless measurement called value. This allows the analyst to sum all of the measures linearly for an overall score. Therefore, the value associated with a measure's score is derived from a value function that performs the critical task of standardizing otherwise dissimilar scores onto a common value scale. These functions are called single dimension value functions or single attribute value functions (Kirkwood, 1997:60). The most commonly used value scale extends from 0 to 1, and the definition of full value is established uniformly for all value

functions (Kirkwood, 1997). A value function can take on various forms, such as categorical, continuous, or piecewise linear. In any case, it is common convention to assign values to scores in a monotonically increasing manner.

The simplest form for a value function uses categories. This form of the value function is suited for qualitative measurements such as high/medium/low or Yes/No determinations. Figure 9 shows an example of a categorical measurement. In this case, the lowest value of zero is assigned to the qualitative score "Low." The "Medium" score yields a value of 0.5, and the "High" score yields the full value of one. An alternative is scored based on the bin the alternative fits in best. Each bin has a value from zero to one.

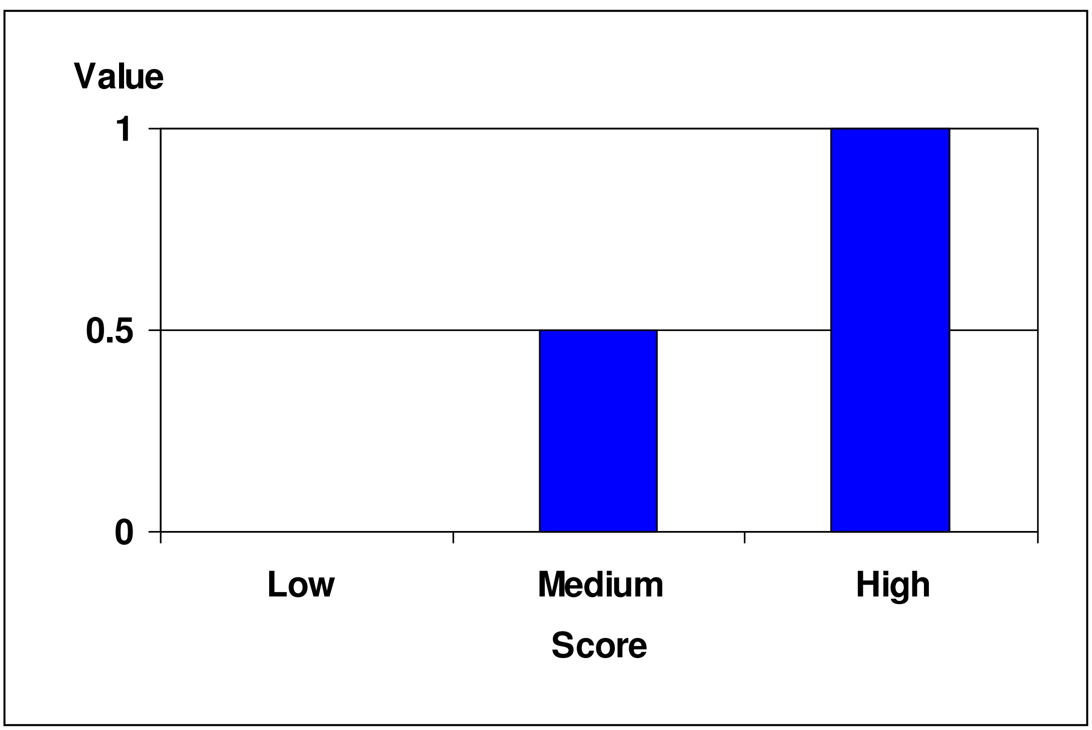

Figure 9 – Single Dimension Value Function (Categorical)

The continuous value function can take the form of a graph as shown in Figure 10 or an equation. Alternatives are scored according to the x-axis. The value on the y-axis is assigned according to the function. This graph shows that the measure assigns exponentially increasing value to scores from zero to 100 seconds. The function produces a full value of one for alternatives scoring 100 seconds on this measure. The continuous value function has the advantage of incrementally assigning value, thereby resulting in smooth transitions across the spectrum of possible scores and avoiding large jumps in value for small changes in score.

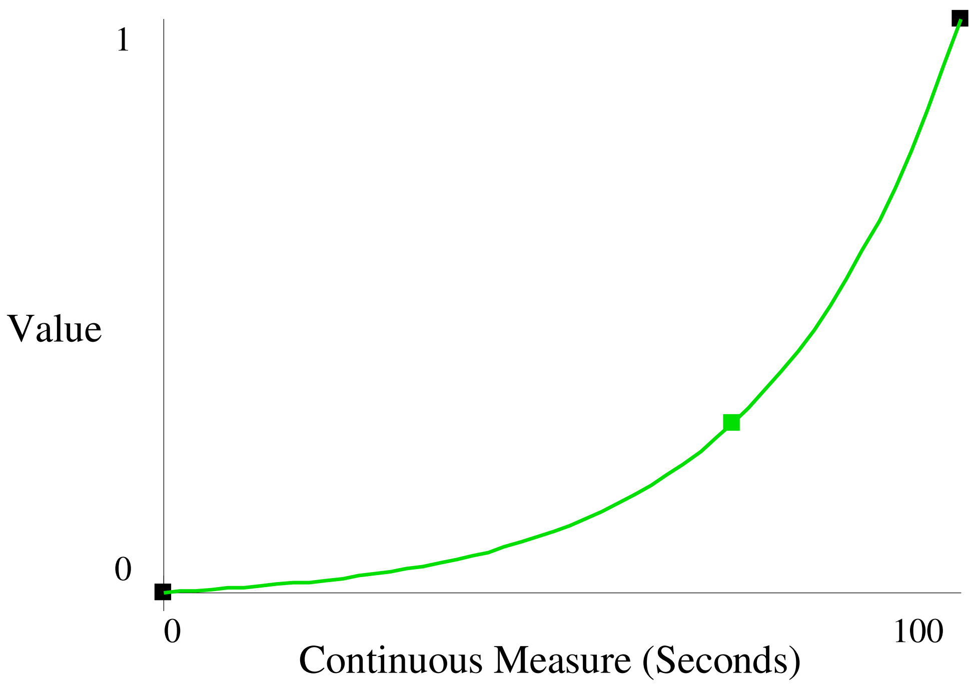

Figure 10 – Single Dimension Value Function (Continuous)

The Piecewise Linear value function is similar to the continuous value function with the notable exception that values are assigned in pieces similar to the bin value function. However, unlike the bin value function, values continue to change in a continuous manner within the range. At the end of the range, the value changes abruptly. Figure 11 illustrates this. The measure scores an alternative based on feet. The function assigns full value for a score of zero and then linearly less value until a score of approximately 25 feet. Value is then assigned linearly for scores greater than 25 feet, but the changes in value are larger because of the steeper slope of the line.

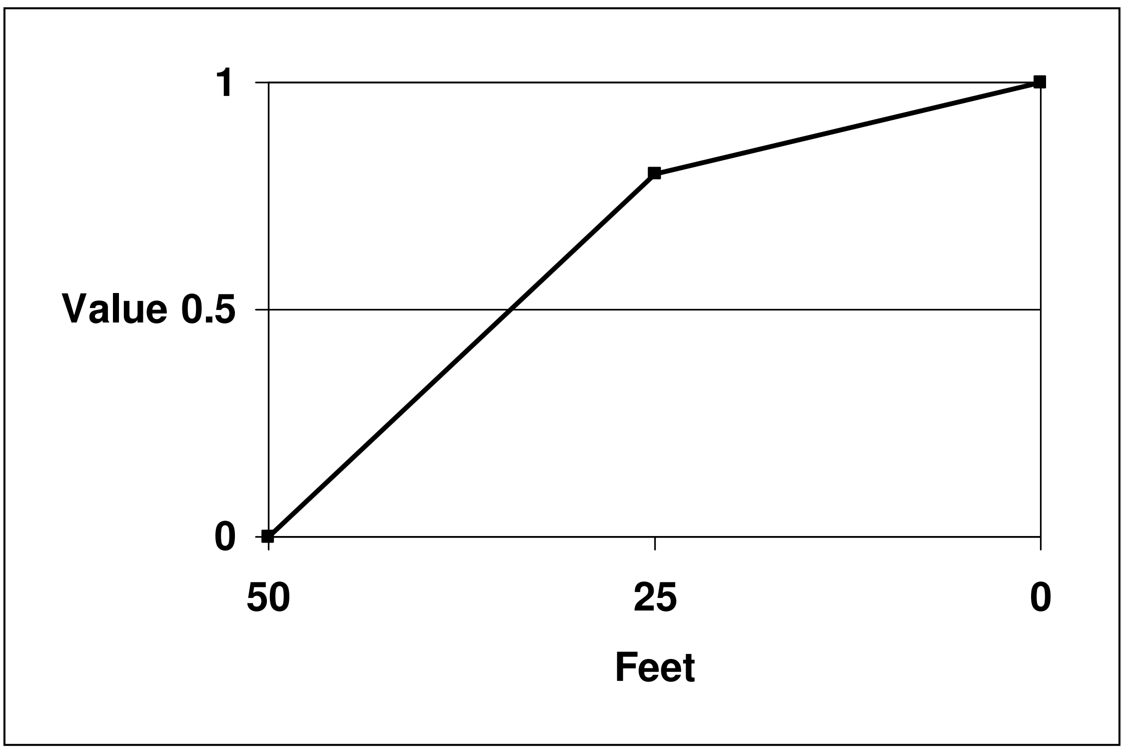

Figure 11 – Single Dimension Value Function (Piecewise Linear)

2.10.5 Weighting the Hierarchy. The process of weighting the hierarchy achieves the important goal of assigning importance to objectives and measures. Although not impossible, it is not likely that a decision maker values all objectives equally. In most cases, some objectives are more important in the decision than others. Chambal (2002) discusses several means of assigning weights: swing weighting, parameter weighting, ratio weighting, comparison weighting, etc. Regardless of the method used to develop weights, the hierarchy can be weighted either globally or locally. The manner in which the hierarchy is weighted is an indication of the decision maker's familiarity of the tradeoff relationships between various objectives or measures. The local weight for each objective and measure can be calculated from the global weights; and similarly, global weights can be calculated from local weights.

A hierarchy is commonly weighted globally when the hierarchy is constructed in a bottom-up fashion (Chambal, 2002). The decision maker will have a better sense of the tradeoffs involved between the objectives in the bottom tier since they formed the beginning of the hierarchy. The first or top tier would have been derived and the decision maker is less likely to feel comfortable trading value at that level. Global weighting assigns values across an entire tier; in other words, value is traded off between all objectives on a tier without regard to branches (Chambal, 2002).

A hierarchy constructed in top-down fashion, on the other hand, is commonly weighted locally. The decision maker starts by assigning weights among the first tier objectives. The sum of these weights equal one since they are collectively exhaustive. The decision maker then moves down each branch of the hierarchy assigning local weights to all objectives on a tier within the branch. Figure 12 illustrates local weighting.

The sum of all local weights for sub-objectives immediately below an objective within a branch is one (Chambal, 2002). For example, the local weights for Objectives A1 and A2 sum to one because together they fully define Objective A. Similarly, objectives with more than one measure must have their measures sum to one. In short, tradeoffs in value are done locally within the scope of the objective immediately above the tier being weighted (Chambal, 2002).

The local weights at the measure level must be converted into global weights to account for each measure's overall contribution in achieving the fundamental objective. The local weights are easily converted to global weights by multiplying the local weights of all objectives above each measure by the local weight of the measure. For example, in Figure 12 the local weight for measure A2.2 is 0.2. The objectives above this measure include Objective A2 and Objective A. Their respective local weights are 0.7 and 0.5. The global weight of measure A2.2 therefore would be 0.2 x 0.7 x 0.5 = 0.07. This global weight represents the share of the overall value that measure A2.2 provides towards the fundamental objective. The sum across all the measures' global weights equals one (Kirkwood, 1997).

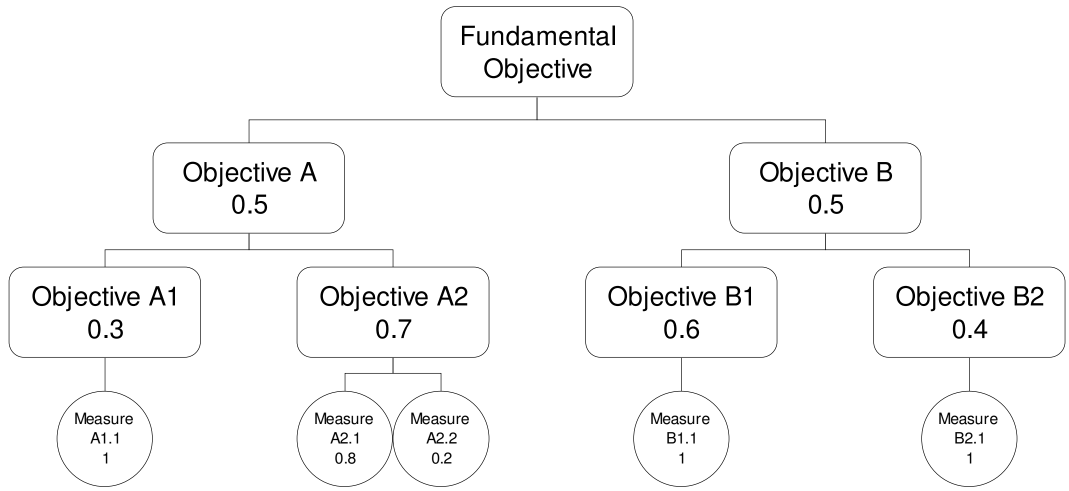

Figure 12 – Local Weighting Example

2.10.6 Generating Alternatives. The ability to generate alternatives is a major benefit of value focus thinking. Using a strategy generation table, decision makers can gain insight and generate creative alternatives (Keeney, 1994; Kirkwood, 1997). This research effort did not require alternative generation since projects pre-existed as submittals from the major commands.

2.10.7 Scoring Alternatives. The next step in the value-focused thinking process involves scoring the alternatives. The decision maker must gather data on each alternative relevant to the measures in the value hierarchy. In cases involving many alternatives, such as this one, organizing the information is the most difficult aspect (Kirkwood, 1997). The scoring process simply involves determining where the alternatives fall on the x-axis of each measure. For example, consider the continuous value function in Figure 10. Scores for alternatives could range from 0 to 100 seconds.

It is important to note that the alternatives are evaluated against the x-axis of the measure and not relative to other alternatives.

2.10.8 Deterministic Analysis. A multi-objective value function, which consists of the global weights and single dimension value functions for each measure, yields the overall value for each alternative. The multi-objective function sums the product of each measure's global weight and single dimension value function into an overall alternative value. In most applications, the scores for each measure will be assigned a value between 0 and 1. Therefore, a typical maximum value for a multi-objective value function for any alternative is one (Kirkwood, 1997). This procedure provides the basis for ranking the alternatives in order of preference.

2.10.9 Sensitivity Analysis. Sensitivity analysis helps identify the effects changes in the decision maker's assumptions have on the results of the decision (Kirkwood, 1997). The analyst can conduct sensitivity analysis on the measures by varying either their weights or their single dimension value functions (Kirkwood, 1997). Sensitivity analysis is often done on the weights since they represent the importance of each of the measures in the value hierarchy. In cases involving multiple stakeholders, there are often disagreements regarding the weights of the measures. This step helps resolve differences between stakeholders and sheds light on how to improve an alternative (Kirkwood, 1997). When conducted on the weights, sensitivity analysis involves varying weights to see the impact on the alternative rankings. Sensitivity analysis was not conducted during this research given the large number of alternatives.

2.10.10 Recommendations and Presentation. The end of the value-focused thinking process involves presenting recommendations to the decision maker (Jurk,

2002). The insight gained from the deterministic and sensitivity analyses helps provide the decision maker the necessary information to select the best alternative. Chambal (2002) and Jurk (2002) both stress that the value-focused thinking decision model does not replace the decision maker. The decision maker simply is able to make a more informed decision with regards to the fundamental objective.

2.11 Systems Thinking

Systems thinking is a different way of looking at the world that emphasizes connections between otherwise disassociated entities. Sterman (2000) defines system thinking as "the ability to see the world as a complex system in which we understand that you can't just do one thing and that everything is connected to everything else." System thinking involves the ability to see both the forest and the trees (Richmond, 1997). Three assumptions that characterize systems are system as a cause thinking, operational thinking, and closed-loop thinking. System as a cause requires establishing a proper system boundary; it implies that changes in a system are caused by entities within the system boundary (Richmond, 1997). The second assumption, operational thinking, seeks to uncover how a system actually works. By distinguishing between correlations and causes, operational thinking focuses on the causal relationships between system entities to better understand the system's behavior (Richmond, 1997). The final assumption characterizing systems is closed-loop thinking, which emphasizes the idea of feedback loops within the system. The system boundary encompasses the relevant system entities in such a way that feedback loops inside the system become apparent. This network of endogenous feedbacks is the essence of systems thinking. A system behaves according to

its causal and feedback structures. Some of the most complex behaviors in a system may occur because of these feedback loops (Sterman, 2000).

2.12 System Dynamics

Jay Forrester developed system dynamics in the late 1950s by bringing together principles from three fields: control engineering, cybernetics, and organizational theory (Meadows, 1980). System dynamics involves gaining an understanding of complex systems through modeling and simulation involving five steps: defining the problem, formulating a dynamic hypothesis, simulation, testing, and policy design and implementation (Sterman, 2000). Sterman (2000) particularly emphasizes the importance of iteration when modeling a process.

2.12.1 Defining the Problem. The first step in system dynamics is to properly define and clearly state the problem. This includes a clear understanding of the key variables involved in the system. It also includes the selection of the correct time horizon to ensure the proper framing of the problem. A reference mode illustrating the dynamic behavior of key variables completes the problem definition step (Sterman, 2000). A reference mode is a graphical depiction of the behavior over a specific time period. Figure 13 shows a sample reference mode for innovation in an organization. The reference mode does not have a numerical scale but instead simply communicates a general pattern of behavior sufficient to begin the modeling process (Shelley, 2002). This example shows that the variable called innovation follows a logistical growth curve. Innovation starts at some low level until a point in time when something causes a rapid increase in innovation. Eventually something else inhibits innovation, resulting in a

return to steady-state at a greater magnitude. The reference mode brings up numerous questions about what is causing these changes in behavior. The system dynamicist forms a dynamic hypothesis to try and explain the behavior in the reference mode.

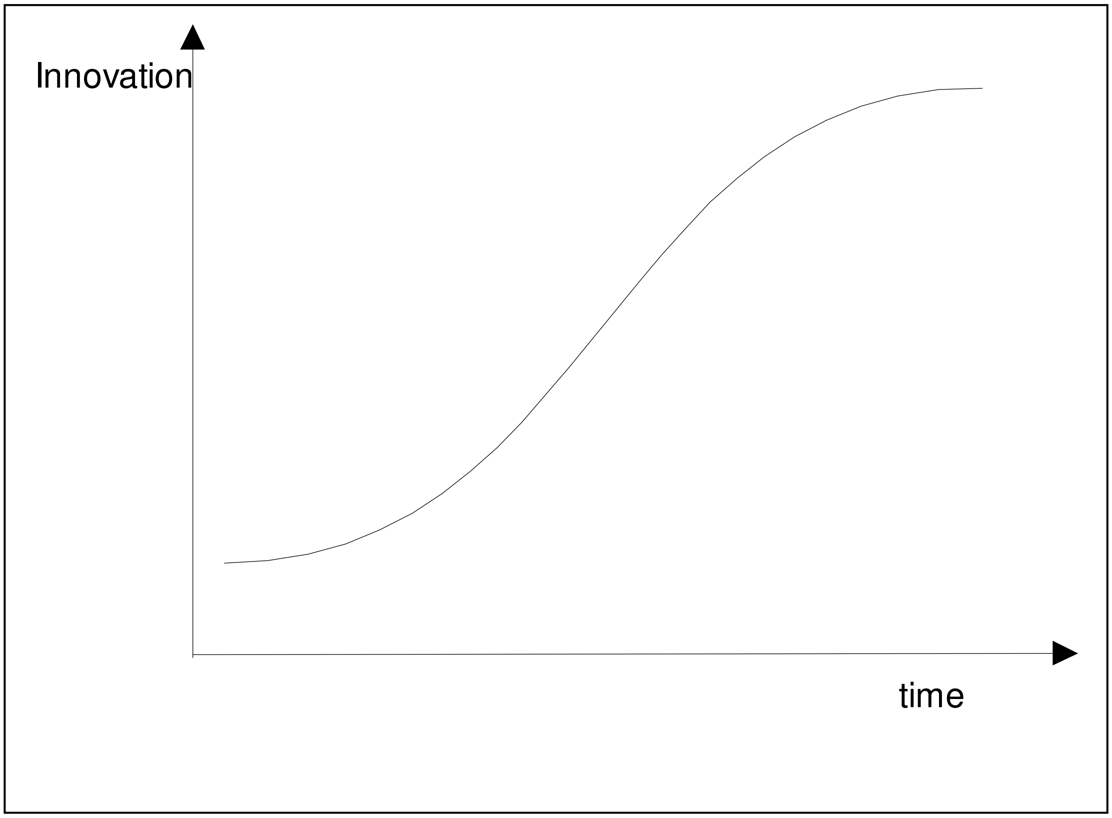

Figure 13 – Sample Reference Mode

2.12.2 Formulating a Dynamic Hypothesis. The dynamic hypothesis describes the problems and their causes in the form of a working theory (Sterman, 2000). The dynamic hypothesis helps focus the modeler on the problem at hand. It is very important

to attempt to include all variables impacting the observed behavior as endogenous variables and not as exogenous (or outside the system) variables (Forrester, 1967). An over reliance on exogenous variables to explain system behavior opens further questions about what is causing those exogenous variables to change (Sterman, 2000). Consequently, such a system does not fully explain the system's behavior, thereby resulting in a model that begs more questions than it answers. The system boundary further clarifies the understanding of the system by limiting the focus of the hypothesis to only those variables that cause the observed behavior (Sterman, 2000).

2.12.3 Simulation. The human mind, although capable of great intuition, cannot handle the multiple interactions that typically occur within a complex system. Therefore, the use of simulation through stocks and flows helps provide the necessary system insight (Richmond, 1997; Sterman, 2000). According to Richmond (1997), stocks indicate how things are in a system at a specific point of time. Flows, on the other hand, represent the activities within a system. An additional benefit to simulation comes from the mechanics of coding the dynamic hypothesis. According to Sterman (2000), formalizing the hypothesis as a computer simulation forces the modeler to explain all aspects of the system under study. The simulation process provides additional insight into how the system works by forcing the modeler to formulate equations that explain the entities' behaviors and relationships.

2.12.4 Testing. Simulating a system helps solidify the modeler's understanding of the system while testing ensures a robust model. Any system should respond appropriately to an extreme value of one of its variables (Sterman, 2000); therefore, modelers commonly use extreme conditions to make sure the model represents reality.

For instance, in a cow milk production model, one would expect that reducing the number of cows to zero would result in elimination of all milk production. This simple test may quickly reveal anomalies not explicitly accounted for in the model.

2.12.2 Policy Design and Implementation. The purpose of modeling a system is to identify the leverages within it to be able to design policies that may influence the behavior of the system. Meadows (1997) defines leverages as the places in a system where a small shift causes other parts of the system to experience large changes. The most effective type of leverage is changing the underlying paradigm of the system, and the least effective type is adjusting numbers within the system. Other approaches include driving negative or positive feedback loops, adding or changing influences, promoting information flow, and adjusting goals.

2.13 Using System Dynamics and Decision Analysis Together

Value focused thinking and system dynamics are each, in their own right, extremely powerful techniques. Value focused thinking masterfully handles the combinatorial-type multi-criteria decision making problem by synthesizing value from competing objectives into a single understandable selection methodology. System dynamics, on the other hand, is uniquely qualified to address the downstream effects of decisions through a greater understanding of the system's dynamic nature through behavioral simulation. There is, however, an unfortunate lack of understanding between the system dynamics and decision analysis communities (Meadows, 1980). The primary cause for this discourse is each school of thought has its own, and in many cases unstated, underlying assumptions. The inability to effectively share the assumptions has resulted

in a general misunderstanding of the benefits of each other's methodologies. The case is made that the systems and decision analysis fields have much to offer each other.

A complementary approach employing the strengths of both methods can be extremely beneficial to the understanding and ultimate solution of the decision problem (Meadows, 1980). Although there are few instances of employing both decision analysis and system dynamics together towards a common solution, the trend is increasing. Santos et al. (2001) point out that although multicriteria decision making (MCDM) is very useful in determining the necessary tradeoffs to develop an evaluation system, downstream assessment of the system's effectiveness is not addressed during implementation and management. Many times the relationships among factors are non-linear, containing feedback loops and delays (Santos et al., 2001). Evaluating the designed system with system dynamics helps identify the critical policy levers that are necessary for successful implementation and management.

Chapter 3. Methodology

3.0 Overview

The Air Force Civil Engineer has the responsibility of developing the annual military construction (MILCON) program from hundreds of capital investment projects submitted by the major commands (MAJCOMs) each year. Since there is not enough money to fund all the projects, the Air Force Civil Engineer uses a MILCON model to prioritize projects. Unfortunately, the model does not include measures designed to select projects that further the Air Force goal of reducing C-3 and C-4 facility class deficiencies. Instead, the model favors larger MAJCOMs with an emphasis on plant replacement value.

This research attempts to develop a proposed MILCON model that will help the Air Force leadership better achieve their objectives as stated in doctrine, policy, and guidance documents. To devise a new model, it is important to understand the behavior of the existing model. Specifically, it is important to understand what contributes to the model's failures. Therefore, during the first phase of this research, systems dynamics tools were used to evaluate the current MILCON model. The second phase involved the development of a proposed model. It is imperative to uncover the strategic goals and objectives by which the Air Force leadership measures the success of the MILCON program. These values must be incorporated into the proposed model. Therefore, the VFT methodology was used during the second phase to develop the proposed model. This helped establish a clear connection between the selection of projects and the organization's goals for the program. Since the goal of reducing C-3 and C-4 facility

deficiencies cannot be achieved in one year, it is important that the proposed model exhibits favorable results over the long term. The third phase of the research evaluated the proposed model's behavior over a period of 25 years. This helped provide insight into the dynamics that might affect progress to the goal of eliminating C-3 and C-4 facility deficiencies. During this phase, enabling policies were identified to ensure long term model success. Finally, during the fourth phase, each model evaluated projects from the FY2004 MILCON program submittal. The immediate effect on targeting C-3 and C-4 facility deficiencies were compared under four separate funding scenarios.

3.1 System Dynamics Approach

The first phase of this research involved a system dynamics analysis of the military construction (MILCON) prioritization model to gain a better understanding of the overall system and its behavior. The general system dynamics approach to analyzing a system involves the following steps.

1. Defining the question to be answered
2. Developing a mental model of the system
3. Determining the reference mode of behavior
4. Designing an influence diagram
5. Simulating the system behavior
6. Exploring management policies that may affect the system behavior

The overall system dynamics approach, like many simulation models, is an iterative process. The final model is constructed modularly as the system boundary is

incrementally expanded until the researcher is satisfied that all pertinent factors have been included.

Richmond (1997) illustrates some fundamentals of system dynamics with a simple bathtub example. This example is used throughout the system dynamics sections of this chapter to help explain the systems dynamics methodology with sufficient detail. A simple feedback system is established when a person starts to fill a bathtub. In studying this system, the object of interest in the system could be as simple as the water level. However, it could also be the water temperature or the water level and temperature. Furthermore, the system can be complicated by a leak in the tub, an undersized hot water heater, or some other variable. How the system is studied depends on the object or stock of interest in the system and the researcher's question regarding the system.

3.1.1 Defining the Question. A critical first step to any system dynamics model involves defining the proper question. In our bathtub example, the question might be "How does the bathtub water level behave over the next hour?" It is clear that this question focuses the effort on level of the water. The system includes many other stocks that exhibit a variety of behaviors, but the question sets the tone for how the system will be evaluated.

3.1.2 Developing a Mental Model. A mental model consists of internalized assumptions and generalizations that define our understanding of how a system works (Senge, 1990). A person who is familiar with a system already has a mental model of that system. Consider the bathtub example. Most people have a deeply ingrained mental model of that system. One's mental model provides the initial understanding of how the

water level will start changing. An urban person from the 21st century would intuitively turn a handle with the expectation that water would flow from the faucet into the tub. On the other hand, a person from the 17th century would look for a bucket of water to start pouring into the tub and may not understand the function of the faucet. The mental model helps the modeler establish a preliminary system boundary, set of assumptions, beliefs about cause and effect, and overall framing of the problem (Sterman, 2000). Simply put, it is an initial familiarization with the system to be studied.

3.1.3 Determining a Reference Mode. The next major step toward evaluating a system involves determining a reference mode. A reference mode is a graphical representation of the behavior of a system over a specified period. Being able to recognize a system's behavior is the first and most crucial step in analyzing a system's dynamic nature. Since the focus question for the bathtub example involved behavior of the water level, the researcher develops a reference mode that addresses water level behavior. The mental model helps guide the researcher in determining the behavior. This behavior could be observed, expected, or even feared (Shelley, 2002). The expected water level for the bathtub example might rise at a steady rate until the level nears the desired level. At that point, the flow is slowed causing the level to rise at a slower rate and eventually reach the desired level. Figure 14 shows this behavior. It is important to note that the x- and y-axis do not have numerical scales. The actual level of the water is immaterial; the system should exhibit similar behavior no matter the level.

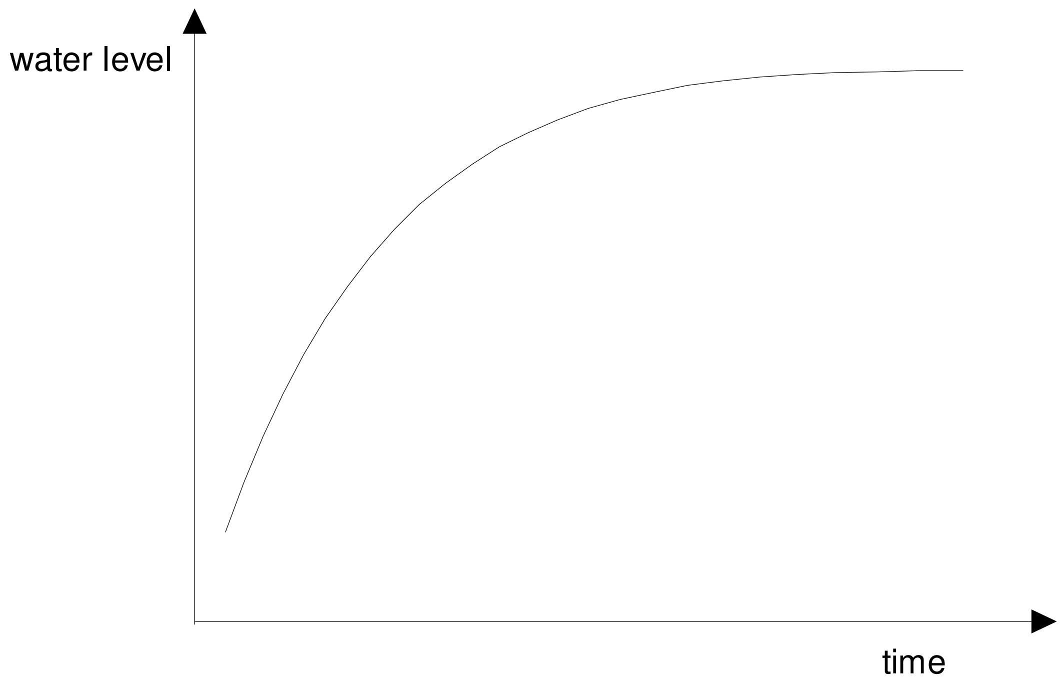

Figure 14 – Reference Mode for Bathtub Example

3.1.4 Designing an Influence Diagram. Once a reference mode is developed, the structure of the system yielding the proposed behavior can be constructed in the form of an influence diagram. The influence diagram is an important tool to communicate and understand the cause/effect and feedback nature of dynamic systems. It consists of entities representing stocks, flows, or information within a system. Continuing with the bathtub example, the reference mode implies a goal-seeking behavior. Goal-seeking behavior is one of many archetype systems with a commonly accepted influence structure. Figure 15 shows this particular type of structure representing a system that approaches steady-state behavior.

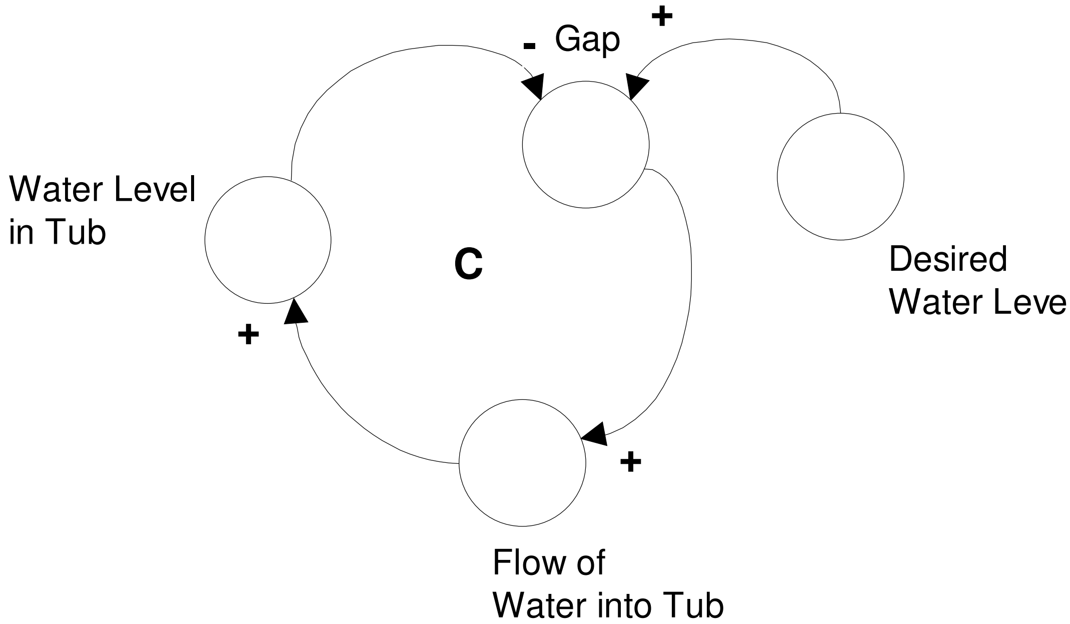

Figure 15 – Influence Diagram for Goal-Seeking Structure
(Shelley, 2002)

The simple goal-seeking structure includes four entities. The stock in this system is the "Water Level in Tub" entity. The flow entity is called "Flow of Water into Tub" while the "Gap" and "Desire Water Level" entities are converters. A converter is neither a stock nor a flow. They are often used as activity modifiers to represent "score-keeping" variables (Richmond, 1997). The arrows represent causal relationships between the entities. The '+' symbol near the arrowhead represents a positive causal relationship and a '-' symbol represents an inverse or negative relationship. For example, the arrow from "Flow of Water into Tub" to "Water Level in Tub" indicates as "Flow of Water into Tub" increases, "Water Level in Tub" increases. The structure also includes a feedback loop. Feedback loops are classified as either reinforcing or compensating. The feedback loop

in the illustrated example is a compensating loop. As “Water Level in Tub” increases, the “Gap” between the water level stock and the “Desired Water Level” decreases.

3.1.5. Simulating the system behavior. The influence diagram structure can be tested through simulation. Simulation involves modeling the system structure to test our mental models of the system and often results in altering our view of reality (Sterman, 2000:37). Modeling software is used to represent the system with stocks, flows, converters, and a variety of other tools. This research used a simulation software package called Stella®. The representation of the system within the modeling software is called a flow diagram. In the bathtub example, water flows through the system. The flow diagram allows the researcher to track the water through the system entities. Figure 16 shows a flow diagram of the bathtub system. The system dynamics modeling process is iterative. Models are changed and refined based on the understanding gained from simulation.

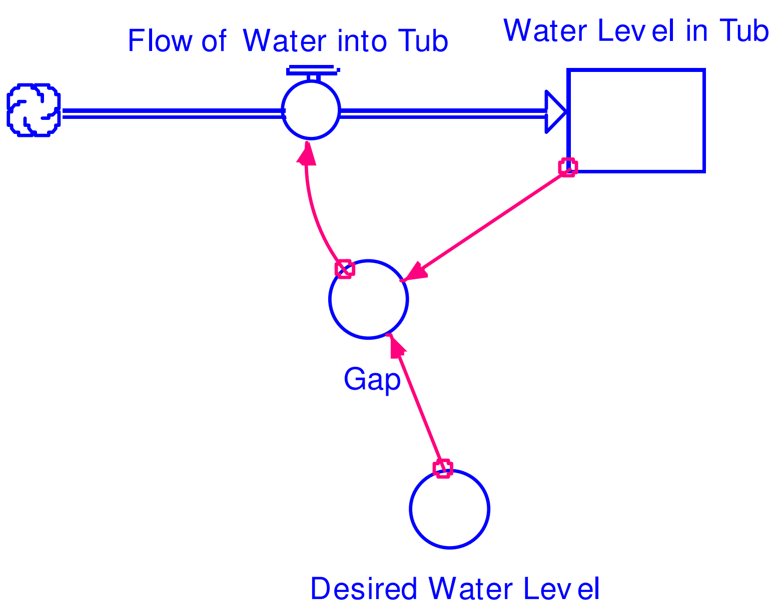

Figure 16 – Flow Diagram of Bathtub Example

During simulations, the boundary of the system is expanded to see if further insight can be gained. The cloud to the left of the "Flow of Water into Tub" entity in Figure 16 represents water coming from somewhere. It may not be important where the water is coming from, but the researcher may want to expand the system boundary and include the water heater. Furthermore, an outflow may be added to the "Water Level in Tub" stock to explore the effects of a leaking or open bathtub drain. As additional entities are added in an iterative process, only those structures that added to the understanding of the research question were retained. The resulting flow diagrams allow simulation of the system during each iterative step, and the simulation software allows the researcher to test the system to determine if it accurately represents the system. Once the researcher feels the system boundary has been set appropriately, the system yielding the behavior in question can be readily simulated. In many cases, the system does not behave as expected but the resulting behavior makes intuitive sense. This can result in a deeper understanding of how the system operates and provide insight into management policies that can leverage desired behavior (Shelley, 2002).

3.1.6 Exploring management policies. Once the system is fully developed and the resulting behavior makes intuitive sense, intervening policies can be tested to determine their effect on system behavior. Consider the bathtub example one final time. The flow diagram model simulates the goal-seeking behavior expected from the reference mode. A basic assumption in the model involves the need for the person to stand by the bathtub and monitor the water level. Suppose the person would like to watch their favorite television show while the bathtub fills to the desired level. A management

policy can be introduced that would alleviate the need for the person to watch the water level.

Choosing an effective management policy depends on the person's mental model and their understanding of the system. Introducing a management policy serves the purpose of leveraging system entities towards a desired goal. Once the management policy is in place, the system behavior is evaluated for any undesired effects. In some cases, however, management policies alone are not enough to achieve the desired organizational goals. According to Meadows (1997), changing the underlying system paradigm is the most effective method to leverage change in a system. Changing the paradigm of the MILCON program would involve developing a new MILCON model.

3.2 Development of Proposed Model

The second phase of this research incorporated the system dynamics analysis with value focused thinking (VFT) to propose a new MILCON model. The VFT methodology involves organizing the decision maker's fundamental values into a value hierarchy; it is a particularly useful method when problems require the decision maker to make complex decisions based on multiple criteria. The preferred method for developing a value hierarchy is through direct solicitation of the decision maker's values. A facilitator guides the decision maker through the process by asking a series of questions. Keeney (1992:57) identifies several methods aimed at uncovering a decision maker's values. In general, it is an iterative process of questions related to goals, objectives, tradeoffs, and consequences.

For this research, the ultimate decision maker for the MILCON program is the Air Force Chief of Staff. However, as with many cases, it is not possible to work directly with the decision maker. Therefore, a proxy decision maker or group of subject matter experts who are familiar with the values of the decision maker can be led in a facilitation exercise to solicit the values. Representatives from the following organizations agreed to serve as subject matter experts and helped develop the decision maker's values: Air Force Engineering Division, Air Force Programs Division, Air Combat Command program development, Air Force Material Command program development, Pacific Air Forces program development, and a base civil engineer with significant MILCON experience. To initiate the VFT process, the decision maker's values were derived from mission goals and objectives in various policy directives and other written guidance. This is commonly referred to as the "Gold Standard" approach (Chambal, 2002).

3.2.1 The "Gold Standard." The "Gold Standard" approach involves a comprehensive review of an organization's written policies, directives, and guidance to gain a reasonable insight into what the decision maker values in decisions. The issues of contextual relevance and importance are some difficult obstacles to overcome. In written language, meaning is ascribed to the words used and their sentence structure. Words or sentences taken out of context can distort or miscommunicate meaning. They can lose their contextual relevance. Furthermore, word frequency may be an indication of importance, but not necessarily. These obstacles can be partially overcome by reviewing multiple, related documents. This approach highlights and reinforces the key concepts. A content analysis was performed and key concepts relating to facility investment and military construction were grouped into an affinity diagram. The resulting groups were

the basis for developing the initial value hierarchy. In order to establish a structure for these groupings that might form the basis of a value hierarchy, the source documents were reviewed a second time to understand relationships between the affinity diagram groups. This helped define the structure these groups might have in a hierarchy. The hierarchy development details are explained at length in Chapter 4.

3.2.2 Value Hierarchy. The development of a value hierarchy begins with identifying the fundamental objective or overall purpose of the decision. To illustrate this process, consider this example. A person would like to purchase a new car. The general approach to developing the hierarchy does not differ significantly between the gold standard and direct solicitation of values. This person knows their fundamental objective involves selecting a car that best fits their transportation needs, and chooses to develop the hierarchy in a top-down fashion. The decision maker decides on three objectives that fully account for the fundamental objective. These objectives include functionality, performance, and safety. Figure 17 illustrates the first tier of the hierarchy.

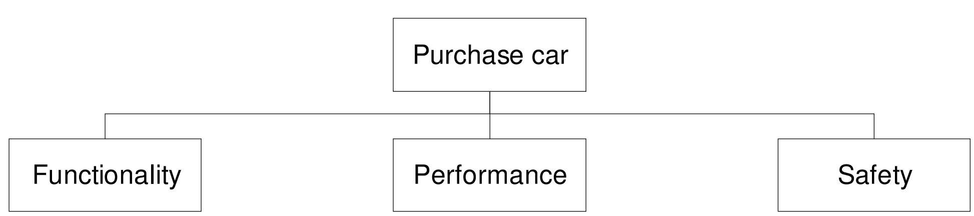

Figure 17 – First Tier of Example Hierarchy

At this point, the first tier includes all of the person's car purchasing objectives. Unfortunately, the objectives are not narrow enough to distinguish between all possible

alternatives. The three first-tier objectives must be decomposed into objectives that are more precise. Each objective is decomposed until the objectives at the lowest tier of the hierarchy can be assessed with measures. Decomposing the objectives results in the hierarchy in Figure 18. Each of the top-tier objectives have been more narrowly defined to allow the decision maker to better differentiate among potential alternatives.

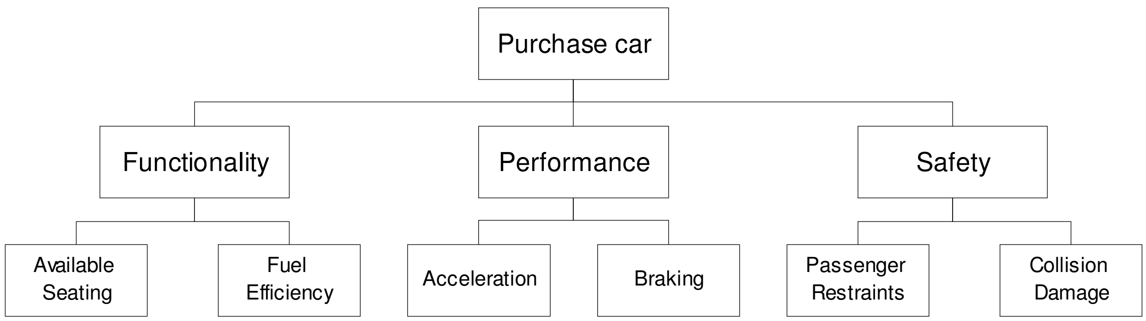

Figure 18 – Second Tier of Car Example Hierarchy

The next step in the VFT process involves assigning appropriate measures to the lowest tier of the hierarchy. The measures are the mechanism that allows a decision maker to determine how well an alternative attains the objective. It is very important to ensure relevant data is available for a selected measure. A measure that seems to capture the essence of the objective but cannot be evaluated because the data does not exist is meaningless (Chambal, 2002). In the car buying example, some measures are obvious while others may have to be constructed. The question, "How do I know if an alternative meets this objective?" is asked to help determine the appropriate measure for a given objective. For instance, available seating can easily be measured by a direct natural

measure of counting the number of seats. Also, the fuel efficiency can be determined by the advertised miles per gallon. Figure 19 shows the selected measures for this sample hierarchy.

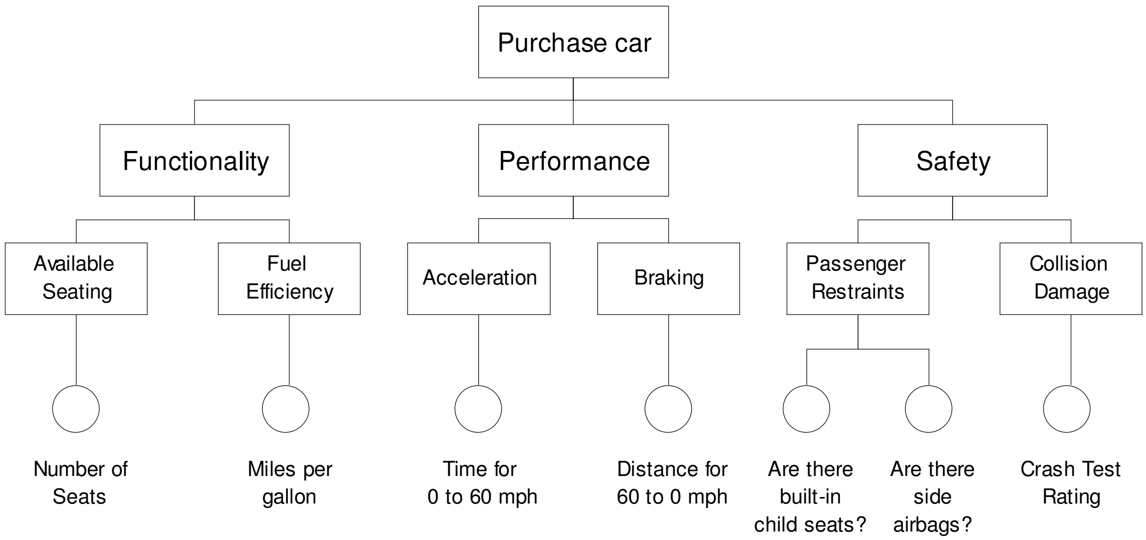

Figure 19 – Sample Hierarchy with Measures

With the exception of the two measures under the Passenger Restraints objective, the measures involve varying degrees of attainment. Consequently, the next step is to develop single dimension value functions to establish a relationship between a measure's score and the value to the decision. To illustrate how to do this, consider one of the measures shown in Figure 19. A measure involving continuous numerical scores such as the "Time for 0 to 60 mph" measure can be represented by either a mathematical or graphical function. The range of scores expected for potential alternatives is defined when the measure is selected. In this case, the range involves times between 12 seconds

and 4 seconds. The decision maker must decide how these scores translate into value to the decision. A value of zero means the alternative adds no value to the decision for this measure while a value of one means the alternative brings all possible value to this measure (Kirkwood, 1997:68). The minimum and maximum scores are the easiest to assign value. In this case, the preference is a faster car so an alternative that accelerates from 0 to 60 mph in 4 seconds or less receives a value of one while an alternative that does so in 12 seconds or more receives no value. The decision maker must now decide on the intermediate scores and their respective values. One approach involves picking the midpoint and deciding how much value that score provides. The decision maker then decides on the general trend towards the low and high extremes. In this case, the decision maker decided that an alternative that accelerated in 6 seconds provided only 50 percent of overall value. The value drops off exponentially for alternatives that score more than 6 seconds while a relatively linear loss of value occurs between 4 and 6 seconds. The resulting single dimension value function shown in Figure 20 represents the standard by which all alternatives will be judged. The single dimension value function represents the decision maker's assessment of how a measure's score translates to value towards achieving the fundamental objective. Consequently, the single dimension value functions may change with a different decision maker.

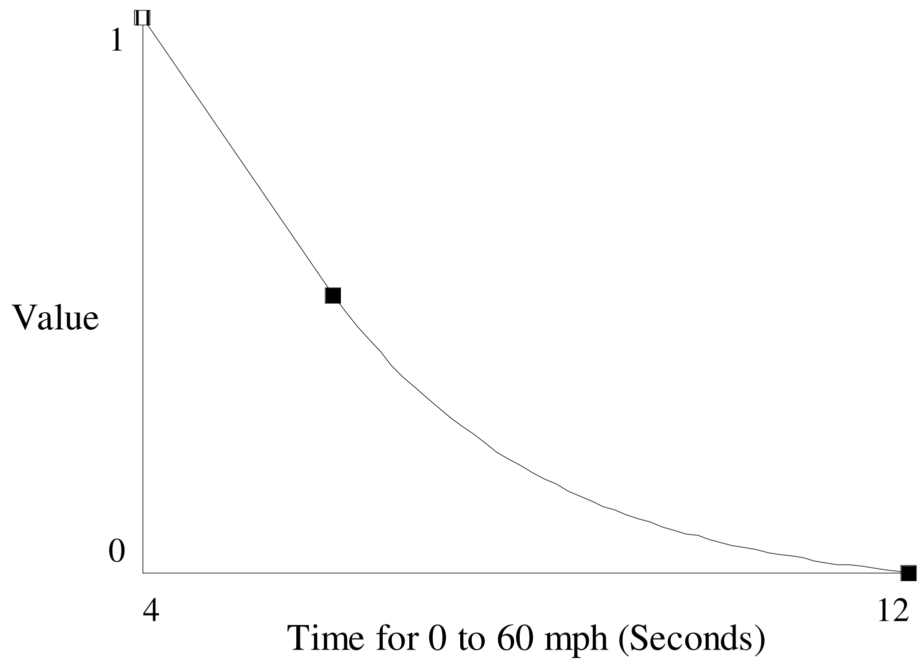

Figure 20 – Single Dimension Value Function for "Time for 0 to 60 mph"

Once value functions have been developed for all the measures, the measures' relative weights must be determined. Since most alternatives will require a tradeoff between the objectives, a weighting system that establishes the importance of the objectives is necessary. In a top-down developed hierarchy, weighting is assigned on a local basis (Chambal, 2002). The car example is useful in illustrating the local weighting methodology. The decision maker starts at the top of the hierarchy and decides which of the objectives in the first tier are most important. The sum of these weights must equal one. For instance, suppose the person buying the car decides that performance is the most important objective and it accounts for 60 percent (0.6) of the decision. Safety is also important, but only accounts for 25 percent (0.25) of the decision. Since all local

weights on a tier of a branch must total one, the functionality objective must be weighted 15 percent (0.15). Furthermore, the local weights for Available Seating and Fuel Efficiency must also total one since they are on the same tier within the Functionality branch. The remaining objectives and the measures can be weighted similarly. The local weights must be converted to global weights since the decision maker is interested in how much each measure contributes to the overall decision and not just to the measure's immediate objective. Figure 21 shows the locally weighted sample hierarchy with global weights in parenthesis.

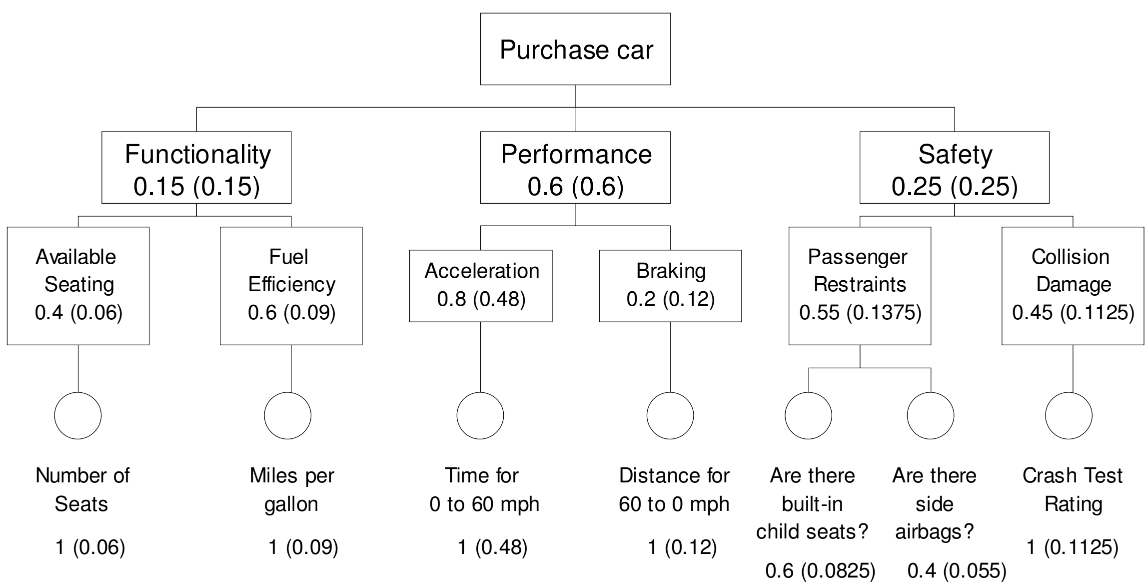

Figure 21 - Sample Hierarchy with Weights

The local weights were converted to global weights as described in Chapter 2. The global weights for each measure are of the most interest to the decision maker at this

point. They are used in determining how well each alternative attains the fundamental objective of purchasing a car. After each alternative is scored with the measures and the scores are translated into value via the value functions, the decision maker can use the following equation to determine the overall score.

$$Overall\,Value = \sum_{i=1}^{n} v(x)_i * w_i$$

The variable n represents the number of measures, $v(x)_i$ represents the value derived from the i^{th} measure value function, and w_i represents the global weight for the i^{th} measure. The maximum overall value for an alternative cannot exceed one. Table 4 shows how the decision maker in the car example might have scored three alternatives. The table also shows the ranks of the alternatives after determining their overall value.

Table 4 – Sample Deterministic Analysis

	Measures							
Global Weights	0.06	0.09	0.48	0.12	0.0825	0.055	0.1125	1
	Number of Seats	Miles Per gal	Accel Time	Braking Distance	Child Seats	Side Air Bags	Crash Test	Totals
Alternative 1								
Unweighted Value	0.2	0.3	0.8	0.6	0	0.5	0.4	N/A
Weighted Value	0.012	0.027	0.384	0.072	0	0.0275	0.045	0.5675
Alternative 2								
Unweighted Value	0.5	0.6	0.5	0.6	0	0.8	0.2	N/A
Weighted Value	0.03	0.054	0.24	0.072	0	0.044	0.0225	0.4625
Alternative 3								
Unweighted Value	0.8	0.4	0.2	0.1	0.9	0.8	0.6	N/A
Weighted Value	0.048	0.036	0.096	0.012	0.07425	0.044	0.0675	0.37775

Table 4 shows how an alternative's weighted value for each measure is obtained by multiplying the unweighted value for the measure by the measure's global weight. For instance, alternative 1 received an unweighted value of 0.2 from the Number of Seats measure value function. Since the global weight for that measure is 0.06, the weighted value that alternative 1 receives for that measure is 0.2 * 0.06 or 0.012. The sum of the weighted values represents the overall value for the alternative. Alternative 1 has the highest overall value with a score of 0.5675, which represents how much of the total value the alternative accounts for in achieving the fundamental objective (Kirkwood, 1997; Chambal, 2002).

3.3 Systems Dynamics Evaluation of Proposed Model

The third phase of this research involved observing the behavior of the proposed model within the system dynamics model. The previously developed system dynamics model was revised to reflect the factors that define the proposed model. The system was then studied just as in phase one to understand the proposed model's impact on the behavior of the system. Additionally, the impacts of policies previously identified in the first phase were tested to determine their applicability in the revised system.

3.4 Comparison of Current and Alternative Models

The fourth and final phase of this research involved comparing the impact of the current and proposed MILCON models on the elimination of C-3 and C-4 facility deficiencies. The Engineering Division of the Air Force Civil Engineer Directorate provided a list of 257 projects from the FY2004 MILCON Integrated Priority List. This

list represented only those projects submitted by the major commands and scored using the current MILCON model. Each project received points based on the four major scoring areas of MAJCOM priority, Investment Strategy Scoring Matrix, Corporate Panel points, and Integrated Process Team points. The project list was sorted by total points in descending order to represent the funding priority under the current MILCON model methodology. A program funding line marking the amount of money available for any given program determines where the list ends. Four lists were generated from funding scenarios including $500 million, $800 million, $1.2 billion, and $1.5 billion. The projects were then prioritized according to the proposed MILCON model. Each project was scored using the measures developed for the proposed MILCON model. The resulting values from the single dimension value functions were multiplied by the global weights of the measures and summed for an overall value score. The projects were then sorted according to their value scores in descending order. The resulting list represented a portfolio of projects that best met the goals of the proposed MILCON model. Four lists representing the previously mentioned funding scenarios were generated for comparison with the current MILCON model's results. The primary comparison involved effectiveness at targeting C-3 and C-4 related projects. A project representing a facility class rated C-3 or C-4 by the FY2001 Installations' Readiness Report was considered effective. The costs of these projects were totaled and divided by the overall program amount to determine a targeting percent. This process was repeated for each of the funding scenarios. Chapter 4 includes these comparisons and additional comparisions involving the models' ability to target older facilities in support of recapitalization and program share by major command.

Chapter 4. Results and Analysis

4.0 Overview

This chapter reports the results of analysis conducted in support of the objectives presented in Chapter 1. The following sections provide the results by referring to each phase of the overall research: system dynamics approach to evaluate the existing military construction (MILCON) model, development of a proposed model using value focused thinking (VFT), systems approach to evaluate the proposed model, and a comparison of the two models.

4.1 System Dynamics Approach

Since system dynamics is especially useful in gaining insight and understanding of complex systems having endogenous feedback loops, the first phase of this research involved a system dynamics analysis of the MILCON prioritization model. This was accomplished by evaluating how well the existing model was able to eliminate C-3 and C-4 facility deficiencies. Although the resulting system dynamics model had relatively few feedback loops, the complexity involved in determining the reductions to the major commands' C-3 and C-4 installation readiness requirements proved quite challenging and provided important insight into the MILCON model.

It should be emphasized that this research focused on the effectiveness of the MILCON model to prioritize projects intended to reduce C-3 and C-4 facility deficiencies and not the MILCON program itself. Since corporate adjustments are not scored by the MILCON model, their impact on C-3 and C-4 facility deficiencies do not directly

contribute to the model's effectiveness. However, corporate adjustments indirectly impact the reduction of C-3 and C-4 deficiencies by reducing available funding for projects scored by the model. Therefore, corporate adjustments were included only as an external influence on funding. Furthermore, a basic assumption during the evaluation of the current MILCON model was an initial lack of corporate adjustments. The resulting MILCON model was developed in an iterative process using the general system dynamics steps described in Chapter 3.

4.1.1 Defining the Question. The focus question for this phase of the research was, "What critical factors affect the behavior of installation readiness from a MILCON prioritization model perspective over the next 25 years?" The Department of Defense goal established the year 2010 as the recommended deadline for eliminating all C-3 and C-4 facility deficiencies; however, this timeline was extended to account for the historic lack of funding for infrastructure requirements.

4.1.2 Developing a Mental Model. A mental model of the MILCON investment system was initially developed through the researcher's first-hand knowledge of the system, an extensive review of relevant literature, and interviews with subject matter experts. This included reviewing the MILCON prioritization model guidelines, Congressional testimony by Air Force and DoD leadership, the Air Force Facility Investment Plan, the fiscal year (FY) 2004 Annual Planning and Programming Guidance, and the FY2001 Office of the Secretary of Defense Posture Statement. Finally, empirical data from past MILCON programs were cross-referenced with data from Air Force real property records and the FY2001 Installation Readiness Database. This data mining effort helped create a better understanding of the relationships between major command

(MAJCOM) plant replacement value (PRV), facility classes, facility age, mission impact, and a host of other variables. One such effort involved an analysis of the impact plant replacement value (PRV) had on a project's score. Figure 22 shows how the 60 possible points for MAJCOM priority under the existing model decrease as the priority increases. The Air National Guard (ANG) loses half the possible points (30) by project priority 4 while Air Force Materiel Command loses 30 points only after priority 12. Finally,

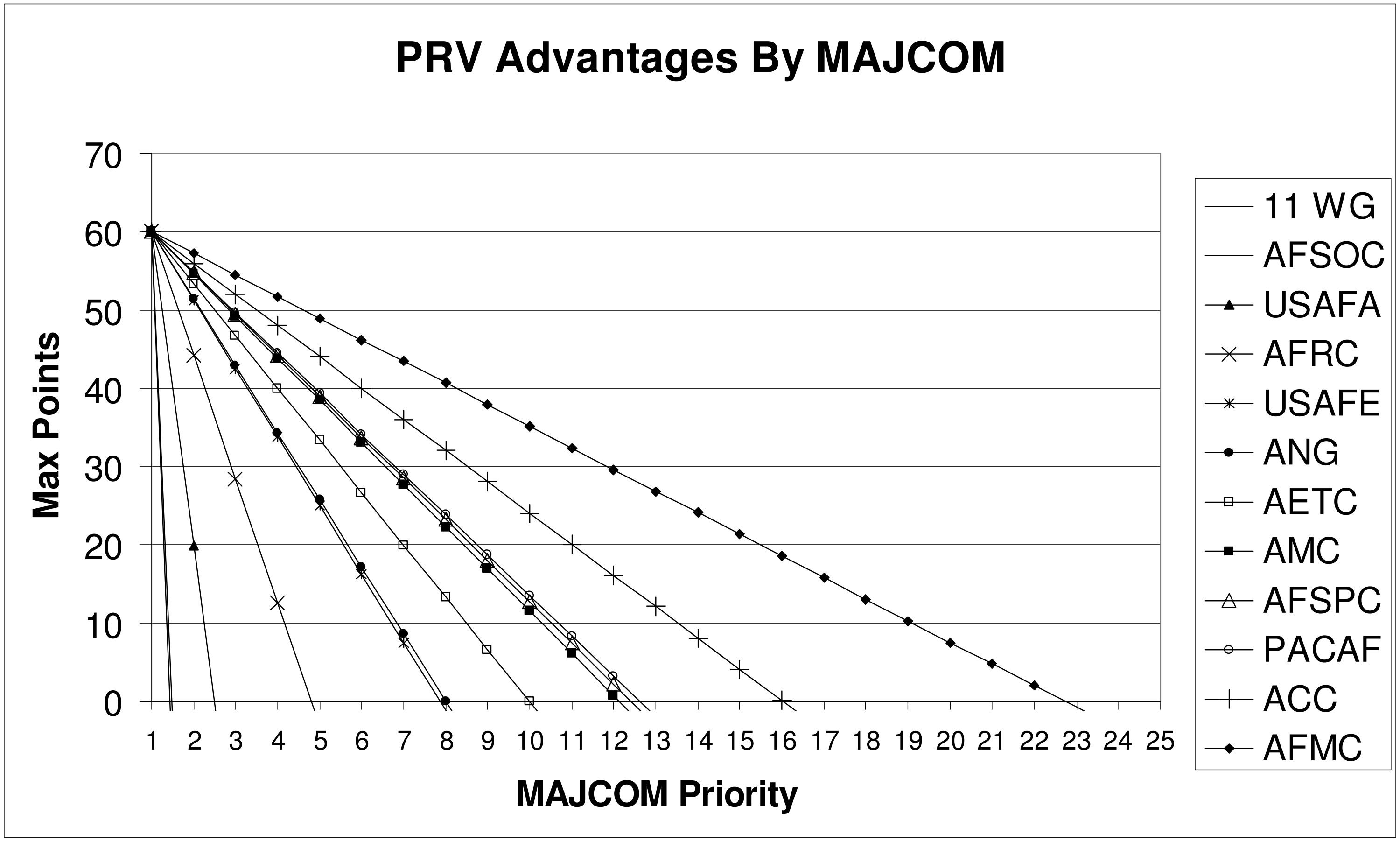

Figure 22 – MAJCOM Plant Replacement Value Impact on MAJCOM Priority Score

MILCON project lists from FY2003, 2004, and 2005 were analyzed to understand how projects were being allocated among the facility classes. Table 5 shows the percent share by facility class as observed from the three lists.

Table 5 – Project Distribution among Facility Classes (FY2003 - FY2005)

Facility Class	Total
Admin	7.92%
Cmty Spt	16.76%
Maint Prod	22.00%
Medical	0.23%
Ops Trng	36.44%
Other	0.70%
RDTE	3.38%
Strat Mob	1.05%
Supply	4.31%
Utils Grnds	7.22%
Grand Total	100.00%

4.1.3 Determining a Reference Mode. Figure 23 illustrates the hypothesized behavior of the number of C-3 and C-4 facility class requirements over the 25-year time horizon in response to the existing MILCON model's prioritization of projects. As shown in the figure, C-3 and C-4 requirements will generally decline in an exponential manner. However, since PRV drives the current military construction prioritization model, each MAJCOM's success will depend on their size and number of requirements.

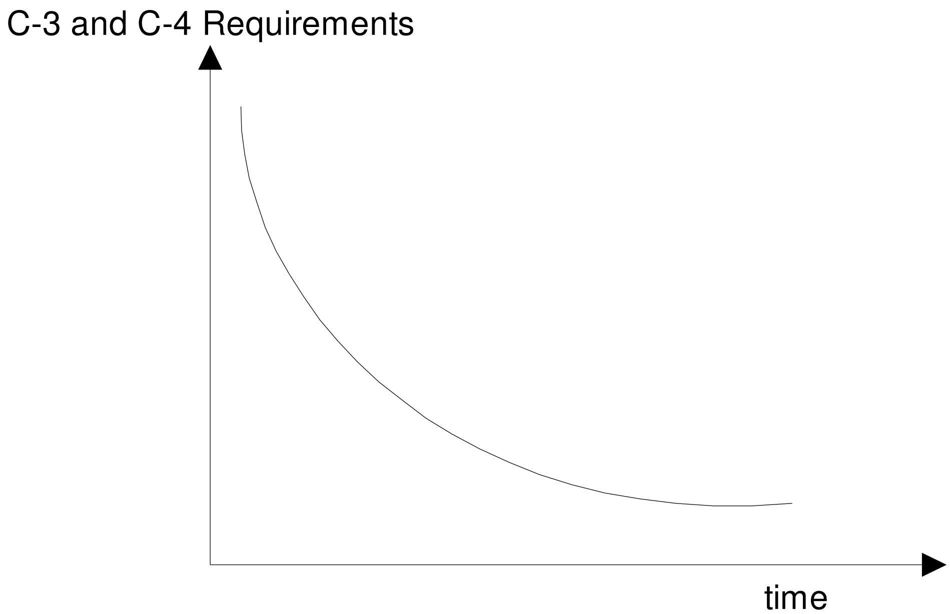

Figure 23 – Reference Mode for Number of C-3 and C-4 Requirements Stock

4.1.4 Designing the Influence Diagram. For exponentially declining behavior such as that shown in Figure 23, the system dynamics literature prescribes an associated influence diagram. The influence diagram shown in Figure 24 conceptually describes the structure that will yield the reference mode behavior from Figure 23. The diagram shows three entities. The top entity, "Deterioration/Obsolescence/Mission Changes," represents an inflow into the middle entity. The middle entity, "C-3/C-4 Facilities," represents the stock of requirements that the Air Force would like to eliminate. The final entity, "Revitalization/ Modernization," represents an outflow from the "C-3/C-4 Facilities" entity. The arrows indicate the causal relationships between the entities. The "+" and "-" signs indicate a positive or negative relationship between the entities connected by the arrow. As the "Deterioration/Obsolescence/Mission Changes" entity increases, the "C-

3/C-4 Facilities" stock increases. On the other hand, this increase in stock causes an increase in the outflow as shown by the arrow from the "C-3/C-4 Facilities" entity to the "Revitalization/Modernization" entity. The increase in outflow also has a corresponding negative effect on the "C-3/C-4 Facilities" stock causing the "C-3/C-4 Facilities" to decrease. The net result is the stock representing the "C-3 and C-4 facilities" declines exponentially because of the negative feedback loop at the lower half of the diagram. This exponential behavior is more pronounced when the influence from the "Deterioration/Obsolescence/Mission Changes" entity is weak compared to that from the "Revitalization/ Modernization" entity.

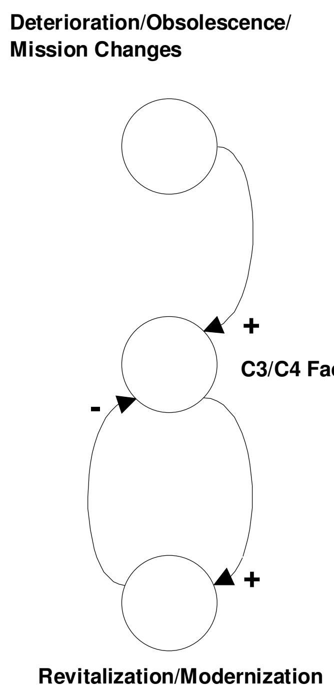

Figure 24 – Installation Readiness Influence Diagram

The shape of the exponential decline in the number of C-3 and C-4 facilities varies for each MAJCOM. Since one of the purposes of the MILCON model is to eliminate deficient facilities, the model's influence on this system was explored in more detail. For the purposes of this research, the model's influence is described as model effectiveness, which may be either increased or decreased by a variety of factors. The corresponding influence diagram is shown in Figure 25. This diagram shows a "Model Effectiveness" entity influenced by "Plant Replacement Value," "Mission Type/Mission Impact," and a "Decrease Model Effectiveness" entity. From the formulas used in the current MILCON model, two factors account for 95 percent of the model's potential impact: the MAJCOM's plant replacement value and the typical mission categories it submits. The effectiveness of the MILCON model increases as plant replacement value and mission type/mission impact (or mission matrix) increase. The entity called "Decrease Model Effectiveness" causes a reduction in "Model Effectiveness." There are a number of factors that may cause a decrease in the model's effectiveness: reduced funding levels, corporate adjustments, and submission of projects that do not alleviate C-3 and C-4 requirements. Finally, an increase in "Model Effectiveness" will cause an increase in the outflow, "Revitalization/ Modernization," resulting in a change to the "C-3 and C-4 Facilities" stock.

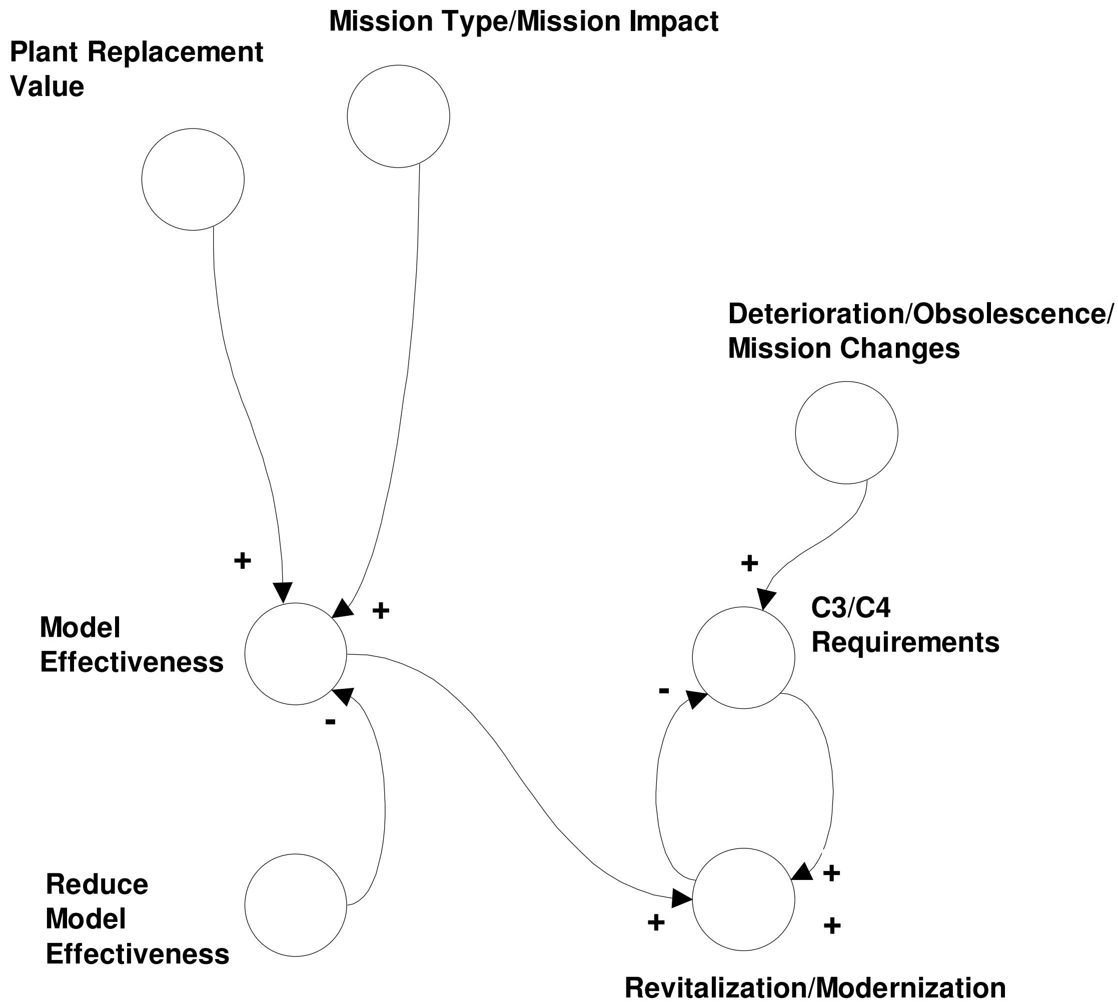

Figure 25 – Influence Diagram with Model Effectiveness

Figure 26 shows the result of numerous iterations involving the formulation of a system hypothesis and then simulating the behavior to test the hypothesis. Stocks for "corporate adjustments" and "model confidence" have been added to explain their influence on the system. "Corporate Adjustments" represents a level of funding that diverts money from funding projects under the MILCON model. It has the effect of reducing "Model Effectiveness." The diagram also indicates that "Corporate Adjustments" increase as "Model Confidence" decreases and "Model Confidence" decreases when "Revitalization/Modernization" decreases. An additional factor, "C-3/C-4 Targeting Rate" has been added to account for the proportion of projects submitted by the MAJCOMs that do not target C-3 and C-4 requirements. Furthermore, a C-3/C-4 targeting rate increase causes a reduction to the rate that model effectiveness declines.

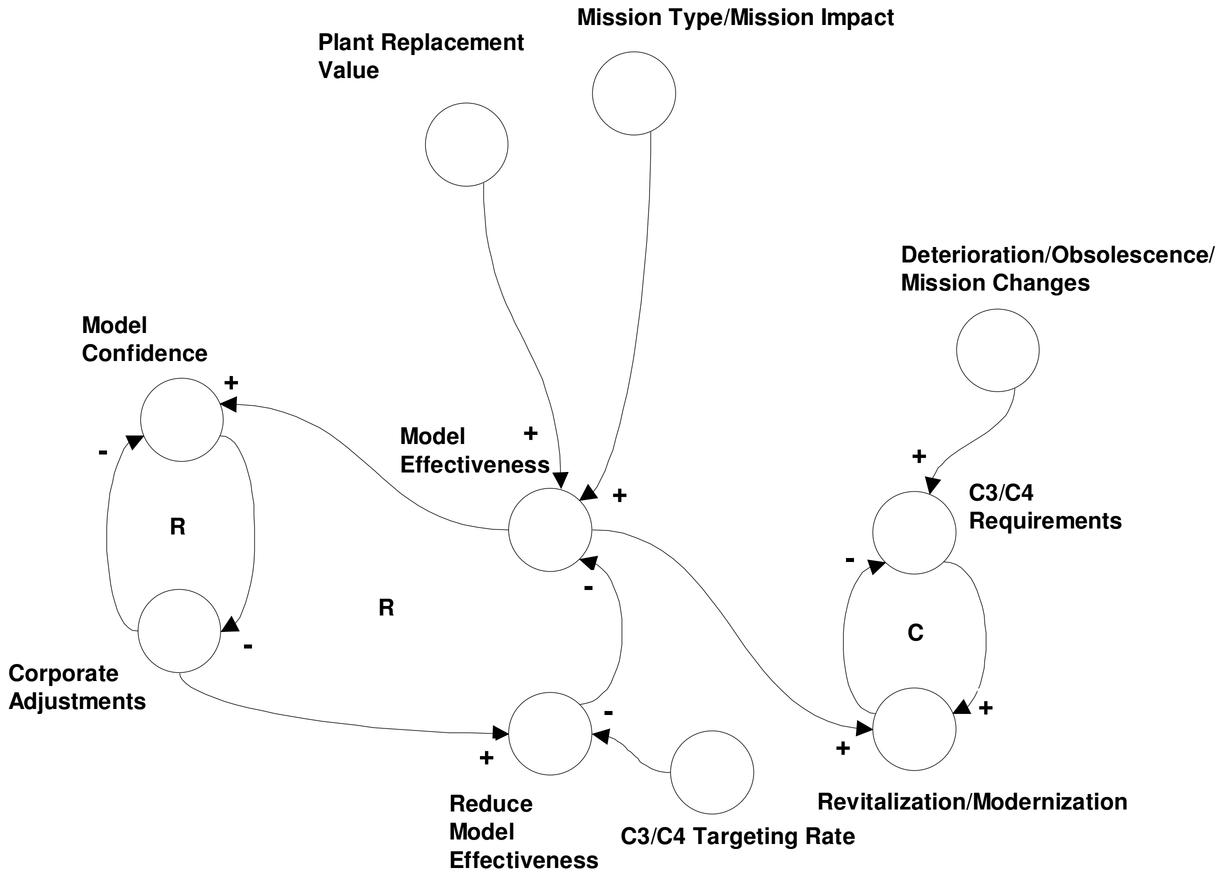

Figure 26 – Influence Diagram: Full System Representation

Since the funding level is imposed on the system as an exogenous variable, it is not within the boundary established for the MILCON model system. Corporate adjustments, however, are internal to the system. A MAJCOM will advocate for a corporate adjustment when the requirement is of such urgency that the risk of submitting it for scoring outweighs the MAJCOM's confidence in the system. Ultimately, corporate adjustments reflect a lack of confidence that the MILCON model will select projects that best meet the strategic goals of the decision maker. The perceived or actual success rate of the MILCON model to select projects that the MAJCOMs feel are important drives model confidence. This influence is represented as a confidence factor determined by what percentage of the MILCON model's selections are targeted at C-3 and C-4 requirements; this is referred to as the C-3/C-4 targeting rate in the diagram. The simulation process used to determine the final influence diagram is described in the next section.

4.1.5 Simulating the System Behavior. The hypothesized system behavior was modeled using Stella®, a computer-modeling software tool that allows the researcher to explore system behaviors through the use of stocks, flows, and first-order differential equations. Appendix A contains the model equations. To help explain the simulation process, the resulting model will be presented in an iterative fashion. Although there were numerous iterations, the discussion will focus on the end-state for each of the principal components.

4.1.5.1 MILCON Process The MILCON process is the portion of the overall system where requirements flow from one status to another. The flow diagram, shown in Figure 27, includes a stock to the left of the figure that holds the C-1/C-2 requirements.

These are not necessarily actual requirements as much as they are potential requirements in the form of facilities and infrastructure that are part of the Air Force physical plant whose condition meets mission requirements as defined by the C-1/C-2 facility ratings. Over time, as facilities and infrastructure deteriorate or become obsolete, those requirements flow via the deterioration entity to the C-3/C-4 requirements stock. In other words, the outflow from the C-1/C-2 requirements stock transfers requirements, in the form of dollars, to the C-3/C-4 requirements stock. The transfer is a function of the requirements in the C-1/C-2 requirements stock, recapitalization rate, and plant replacement value.

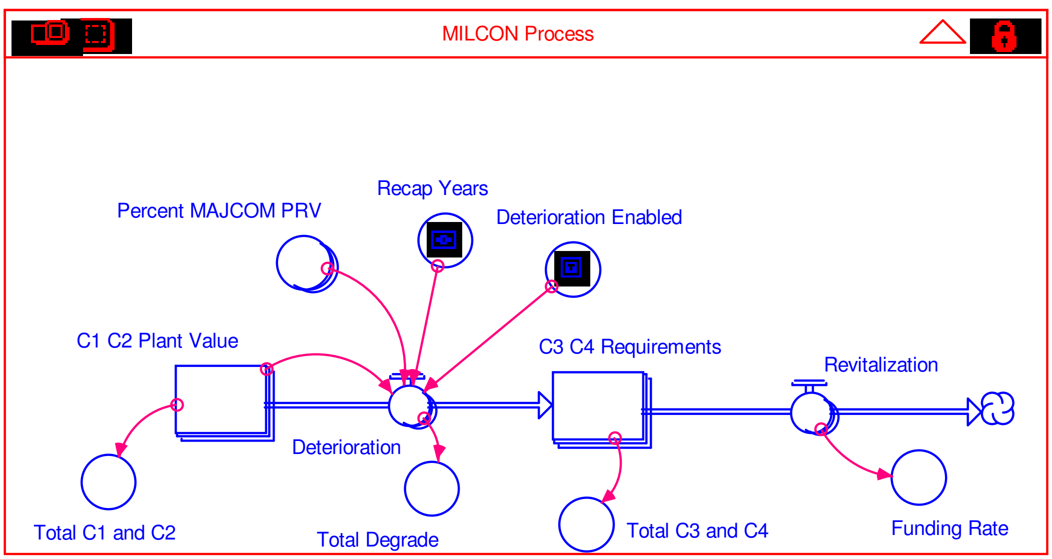

Figure 27 – Flow Diagram for C-3 and C-4 Requirements (Current MILCON Model)

Each entity in Figure 27 was modeled as a two dimensional array. The purpose of the arrays was to track requirements by the 8 facility classes for the 12 MAJCOMs.

Thus, the flow diagram represents 96 different parallel systems. The initial conditions for the stocks were collected from the real property and installation readiness databases. The C-1/C-2 requirements represent the plant replacement value by MAJCOM and facility class while the C-3/C-4 requirements represent the MILCON requirements to attain a C-2 rating.

4.1.5.2 MILCON Model Effectiveness. After simulating the MILCON model, the system boundary was expanded to include MILCON model effectiveness. The entities comprising the MILCON model effectiveness are shown in Figure 28. The initial conditions for these entities included a 100 percent C-3/C-4 Target Factor value, Plant Replacement Values based on the real property database, and Mission Type and Impact based on percent apportioned to the mission categories and their impacts. Mission Type and Impact was calculated from the actual percents for the FY2003, FY2004, and FY2005 integrated priority lists.

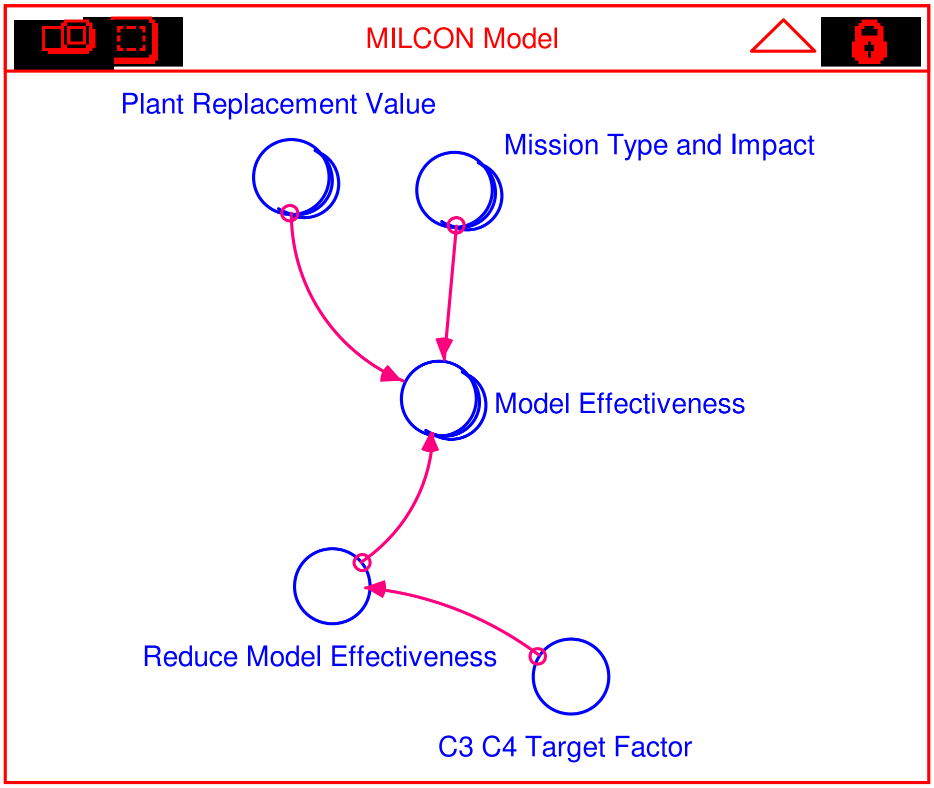

Figure 28 – Current MILCON Model Entities

4.1.5.3 Model Confidence and Corporate Adjustments. The boundary of the model was expanded one more time to account for the impact of model confidence and corporate adjustments. These were modeled as separate stocks connected by a trade-off flow as shown in Figure 29. The tradeoff flow served the purpose of transferring unitless stock between the two stocks. The reason for this was to account for changes in model confidence and the corresponding increase/decrease in corporate adjustment levels. The stocks did not track individual MAJCOM confidence or corporate adjustments; instead,

the values were aggregated. This represented the impact on the system and exhibited behavior that made intuitive sense.

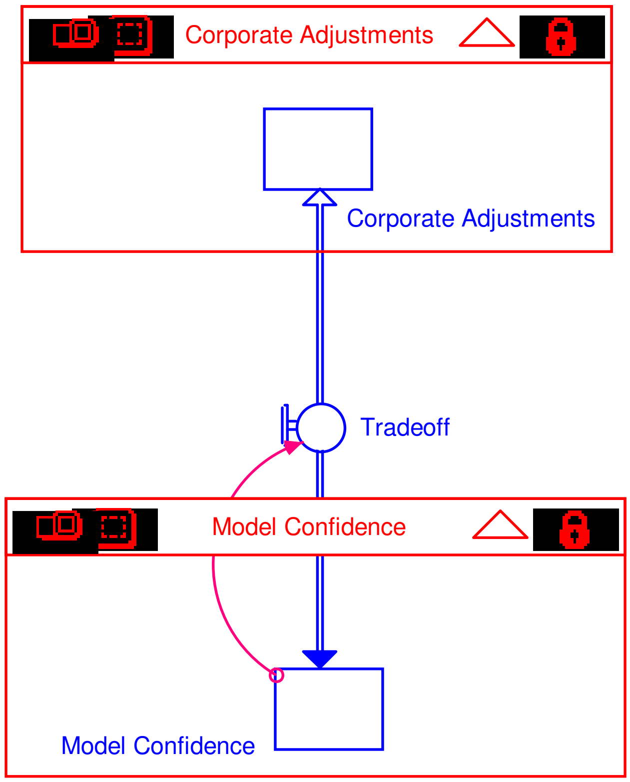

Figure 29 – Flow Diagram for Model Confidence and Corporate Adjustments

4.1.5.4 Entire System. Figure 30 shows the entire system. The initial conditions were set at 100 percent for model confidence representing full confidence in the model and 0 percent for corporate adjustments. The two stocks trade off stock levels within this closed subsystem. The three subsystems are related as shown by the arrows between the groupings. As the model effectiveness entity increases, the revitalization flow increases.

Changes in the revitalization flow feed into a confidence factor that adjusts the balance of stocks between model confidence and corporate adjustments. The no corporate adjustment policy entity closes the tradeoff flow resulting in no transfer to the corporate adjustment stock. The corporate adjustment stock level reduces the model effectiveness because corporate adjustments use up varying portions of the MILCON funding that comes from outside the system. This completes the feedback loops between the three portions of the system.

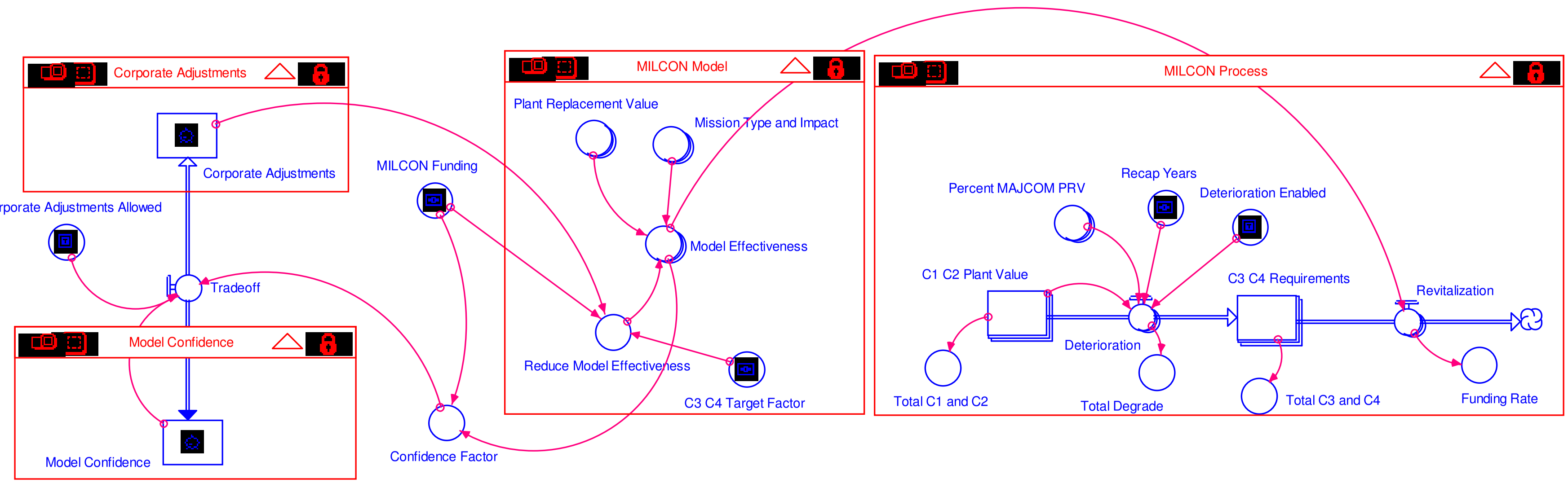

Figure 30 – Complete Flow Diagram for Current MILCON Model

4.1.6 Exploring Management Policies. The completed Stella® model provided interesting information regarding the behavior of the stock for the C-3 and C-4 requirements. Since this stock actually represents 96 different stocks, the combined total was initially observed to determine its overall behavior. The system was initially observed by isolating the stock for C-3 and C-4 requirements. In others words, the system will initially not allow the degradation of C-1 and C-2 facilities over time to add to the stock. This initial constraint, which helped develop a basic understanding of the system behavior, was later relaxed to simulate the real-world impact of deteriorating facilites. With the deterioration flow initially closed, the system reduces the level of C-3 and C-4 requirements rapidly before reaching a steady-state condition as shown in Figure 31. The steady-state level varies as a function of the outside MILCON funding level and the selected C-3/C-4 target factor.

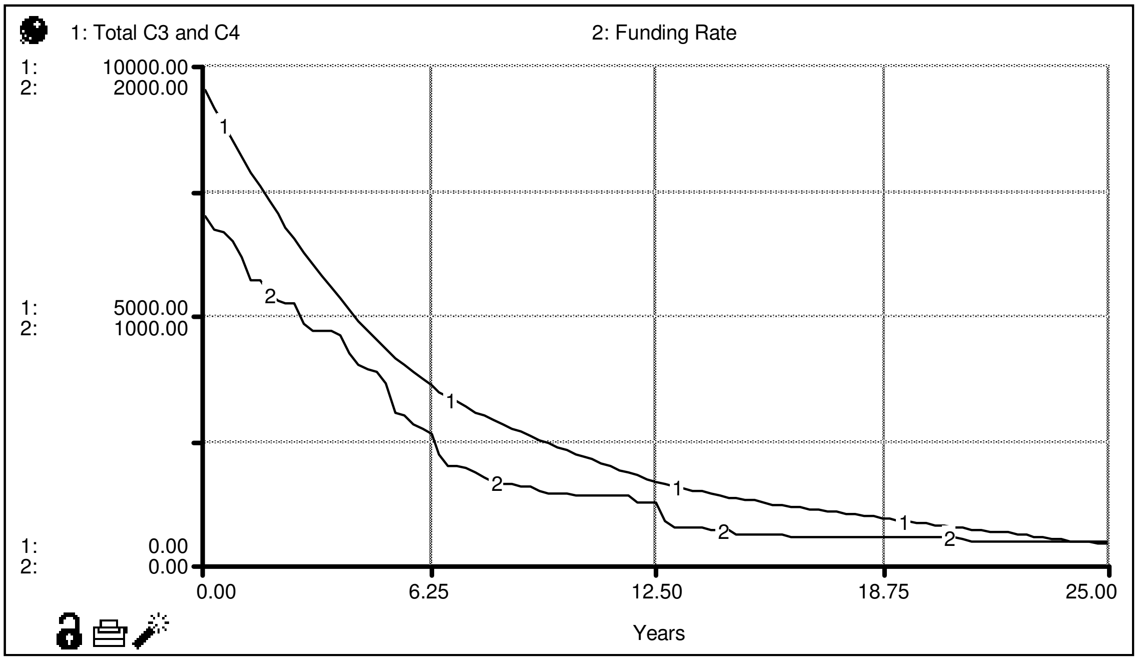

Figure 31 – Current Model C-3/C-4 Stock Behavior with No Deterioration

Higher values for either variable promote a more rapid decline and result in lower steady-state levels. It is important to emphasize that although the steady-state level is lower, the numerical change is meaningless since the system has not been calibrated. This is not a problem since the objective is not to determine a specific amount, but rather to observe an improvement in the behavior pattern. Nevertheless, the behavior of the funding rate is of most concern. The graph shows that although the C-3/C-4 requirements stock decreases as expected, the corresponding decrease in the revitalization flow (aggregated as funding rate) indicates the flow remains extremely low and possibly completely shuts down. This behavior would mean the model cannot accomplish the

goal of eliminating C-3 and C-4 requirements even in the best of scenarios (i.e., no additional requirements added due to deterioration since that flow was closed).

Exploring the model with the deterioration flow engaged results in the behavior shown in Figure 32. The behavior differs from the previous figure. The C-3/C-4 requirements behavior starts to increase as the rate of deterioration exceeds the MILCON model's ability to fund the requirements resulting in an undesirable accumulation of C-3/C-4 stock.

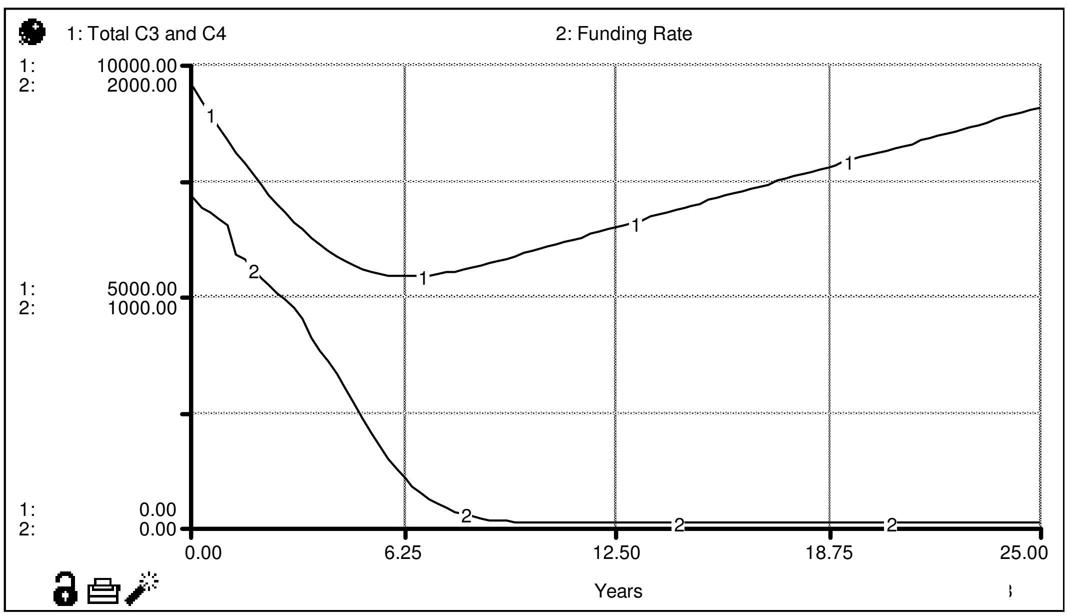

Figure 32 – Current Model C-3/C-4 Requirement Behavior with Deterioration

The increasing trend for C-3/C-4 requirements shown in the previous figure can be alleviated with the application of a management policy. Within the boundary of the system, instituting a "No Corporate Adjustments" policy improves the behavior. Figure

33 shows the result of instituting this policy in the previous scenario (deterioration active). The funding rate declines unfavorably as before. This is due to the allocation of funds based on MAJCOM PRV. A MAJCOM will get a predetermined share of the MILCON funding with no regard to its C-3/C-4 requirements. Once the MAJCOM eliminates its C-3/C-4 requirements, the MAJCOM continues to get that amount but it does not go toward reducing the Air Force's C-3 and C-4 requirements. A proposed MILCON model with a strong fair share philosophy would not appear to achieve the Air Force goal. On a positive note, the steady-state level for the C-3/C-4 stock is considerably lower indicating that the No Corporate Adjustments policy not only corrects for the deterioration, but improves the overall performance of the model. It appears that a proposed MILCON model might also benefit from this policy.

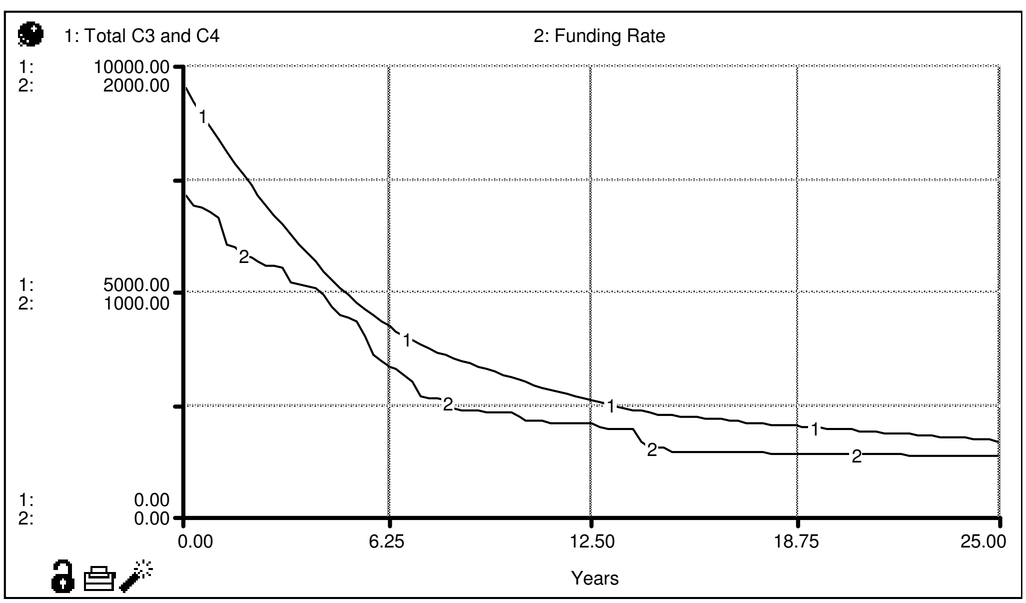

Figure 33 – Current Model C-3/C-4 Requirement Behavior with Deterioration and No Corporate Adjustment Policy

The figures presented thus far represent an aggregate view of the C-3 and C-4 requirements stock behavior. A closer look at individual MAJCOMs' results leads to a different understanding of the system behavior. Intuitively, one would expect a large MAJCOM with relatively few requirements to quickly reduce their C-3 and C-4 facility requirements. Figure 34 shows Air Combat Command (ACC), Air National Guard (ANG), and Air Force Materiel Command's (AFMC) results for the previous scenario. As a large MAJCOM with relatively few requirements, ACC shows a rapid decline to nearly zero. ANG, a smaller command with a large number of requirements, encounters extreme difficulty in eliminating its C-3 and C-4 facility requirements. AFMC, a large MAJCOM with a large number of requirements, performs considerably worse than the smaller sized Air Combat Command with fewer requirements. This occurs for two reasons. First, it makes sense that it will take a MAJCOM with a large share of the MILCON program longer to eliminate a very large number of requirements. Less obvious, however, is the impact that the type of projects has on the funding success. In the case of AFMC, a large number of their projects are Research, Development, Testing, and Evaluation (RDTE)-type projects that do not score well under the current model. ACC and ANG's requirements are largely in the Operations and Training and Maintenance and Production facility classes. Those classes typically receive more points than other facility classes. Consequently, despite their large PRV, they are unable to leverage enough funding to significantly reduce their requirements. The lack of targeted funding towards C-3 and C-4 requirements inhibits the current model's ability to achieve the goal of eliminating these requirements. This occurs because over time much of the funding from the larger MAJCOMs is being allocated to facility class requirements that

have already been fixed. The MAJCOMs and facility classes that require the funding do not receive it at the necessary rate.

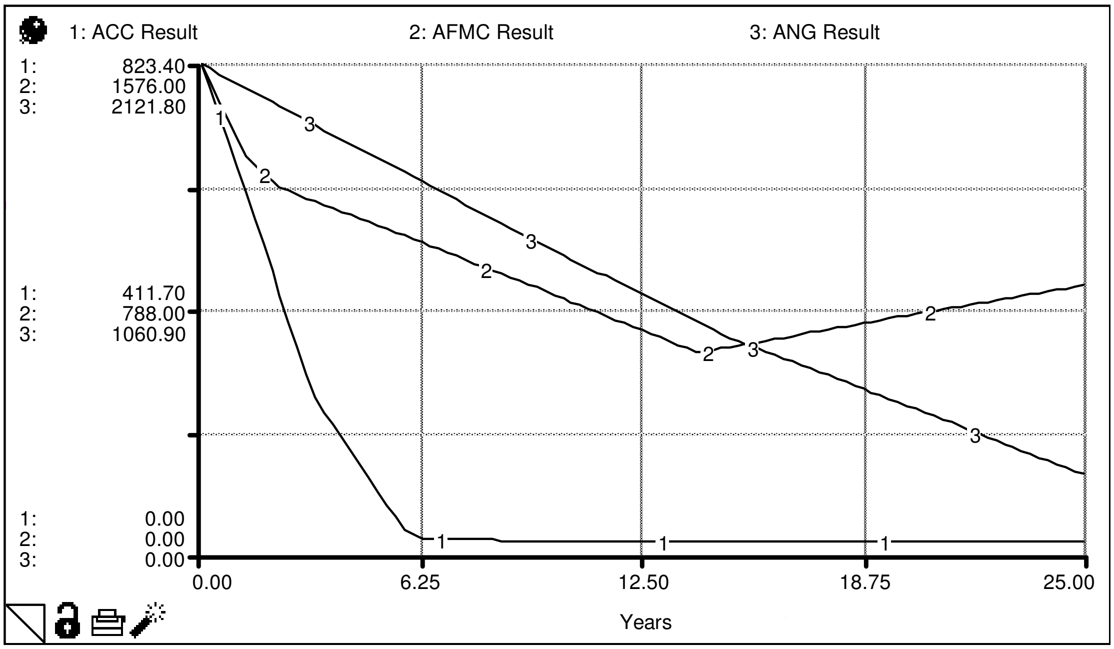

Figure 34 – MAJCOM Comparison in Reducing C-3/C-4 Requirements

In summary, the model confidence is a difficult stock to control in real life. People act on their perceptions of the scoring model's effectiveness for reasons that are sometimes difficult to identify. The tradeoff flow between the model confidence stock and the corporate adjustment stock provides significant leverage in the system. A policy aimed at reducing corporate adjustments or treating them separate from the MILCON total obligation authority would result in improved system behavior. Furthermore, the

C-3 and C-4 Requirements stock could then be eliminated by an established year simply by adjusting the funding level (something that would have to be done from outside the system and may have other effects not explored here). Unfortunately, the dynamic associated with the fair share allocation still would be in effect and would retard the progress. The extremely high funding levels required to eliminate the C-3 and C-4 Requirement stock by the year 2010 are not likely. An alternative approach that targets the heart of the MILCON scoring model would be necessary. The use of fair share allocation based on any factor other than the goal in question has been shown not to work in this simulation. Therefore, a new MILCON scoring model should abandon the fair share allocation based on plant replacement value in order to more effectively achieve the goal of eliminating C-3 and C-4 MILCON requirements. Additionally, policies of requiring all MAJCOM submitted projects to target C-3 and C-4 requirements along with a separate corporate adjustment funding system would help ensure the long term success of a proposed MILCON scoring model.

4.2 Development of a Proposed Model

This section provides details on the development of a proposed MILCON prioritization model using value focused thinking (VFT). Organized according to the methodology outlined in Chapter 3, this section describes the value hierarchy developed using the "Gold Standard" approach. The intent of the VFT is to produce a rank-ordered listing of projects from the perspective of the value they contribute to the organization's articulated objectives.

4.2.1 The "Gold Standard." The "Gold Standard" approach involves a comprehensive review of an organization's written policies, directives, and guidance to gain a reasonable insight into what the decision maker values in decisions. This research used the six different source documents shown in Table 6 to determine the Department of Defense and Air Force strategic objectives as they relate to capital investment goals.

Table 6 – Gold Standard Source Documents

A Framework for Readiness
Air Force Facilities Investment Plan
Civil Engineer Strategic Plan
Air Force Doctrine Document 2-4.4 Bases
Infrastructure and Facilities
FY2004 Annual Planning and Programming Guidance
Air Force Instruction 32-1021 Military Construction Program

Specifically, content analysis was performed on these documents to identify broad concept groups related to the MILCON process. These groups included quality of life, efficiency, mission capabilities, environment, sense of community, responsiveness, security, right size, and right place. In addition to the insight gained from this document review, the researcher developed an initial set of measures based on personal experience as a military construction program manager. These measures were reviewed by a team of subject matter experts serving as a proxy decision maker and modified where necessary.

4.2.2 Value Hierarchy. An initial hierarchy, developed using the gold standard, along with a brief explanation of the VFT process was sent to the group of subject matter experts for review. Each subject matter expert was contacted via telephone and the

hierarchy was adjusted according to their inputs. Insights gained from the system dynamics evaluation of the current MILCON model helped guide any adjustments to the hierarchy. For instance, suggestions to include plant replacement value were rejected based on evidence from the system dynamics phase of the research.

4.2.2.1 Fundamental Objective. The intent of the hierarchy is to produce an ordered list of most valued to least valued projects from the perspective of the organization's articulated objectives. The fundamental objective for the value hierarchy is to select MILCON projects that best reflect the capital investment strategy as outline in the Facilities Investment Plan. Specifically, the intent is to increase the percentage of projects that target C-3 and C-4 requirements. Nevertheless, the goal is not to exclusively select projects that target C-3 and C-4 requirements.

4.2.2.2 Top-Tier Objectives. After performing content analysis on the previously mentioned six documents, a comprehensive list of concepts relevant to the fundamental objective was developed. This review of each source document for concept relationships and importance uncovered consistent results. Grouping similar concepts resulted in an affinity diagram. The eight major groups of the affinity diagram and their respective concepts are summarized in Appendix B. Before proceeding with the development of the value hierarchy, some of the more important concepts will be briefly discussed.

"Installation engineering is the sum total of activities needed to develop, operate, sustain, restore, and protect bases, infrastructure, and facilities" (Civil Engineer Strategic Plan Volume 1, 2000:28). The strategic plan further explains that the measures of success are meeting mission requirements, providing quality working and living environments, and doing so in an efficient manner. Similarly, the Office of the Secretary

of Defense 2001 Posture Statement highlights the following four strategic goals for their facility investment strategy: right size and place, right resources, right quality, and right tools and metrics. The first three goals are similar to the measures of success identified for installation engineering in the Civil Engineer Strategic Plan. Right size and place encompasses meeting mission requirements as well as doing so in an efficient manner. Right resources further expounds on the concept of efficiency. Additionally, right quality is equivalent to providing quality working and living environments. For the civil engineering field, the focus is on maintaining the infrastructure in support of operations. Air Force doctrines states that "more emphasis may be needed in the other infrastructure areas to support mission accomplishment, morale, quality of life, and to ensure the provision of essential services" (AF DD 2.4-4, 1999). These priorities are similar to the ones seen in the previous two documents. Furthermore, the doctrine highlights efficiency when explaining that "strategic basing …seeks to strike a balance between … increased efficiency … quality of life and sense of community" (AFDD 2-4.4, 1999:42).

Based on the content of relevant documents, the top tier of the value hierarchy includes efficiency, operational support, and quality of life in support of the fundamental objective as shown in Figure 35. These three values collectively encompass all sub-objectives (or refined values), thereby resulting in a complete or collectively exhaustive top tier. The sub-objectives, represented by the branches of the hierarchy, are collectively exhaustive as well. Further decomposition of each sub-objective resulted in additional tiers for the value hierarchy. This disaggregating process was repeated until a set of measures could be identified that adequately consider the value of the lowest tier

sub-objectives. The next three sections explain the sub-objectives and the resulting measures for each branch.

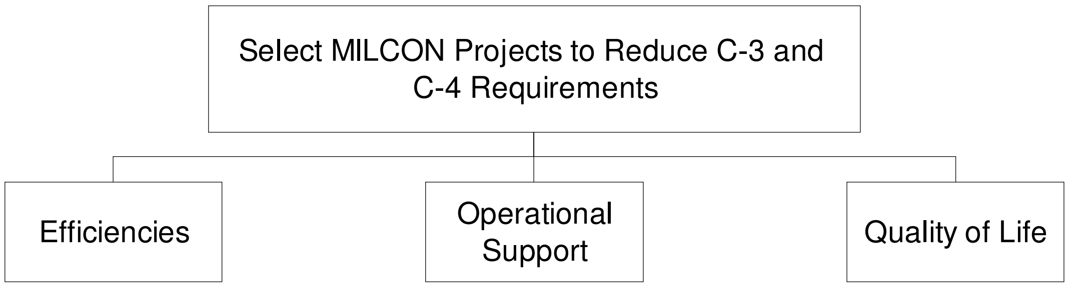

Figure 35 - First Tier of Proposed MILCON Model Hierarchy

4.2.2.3 Efficiencies Branch. The efficiencies branch addresses the need to utilize resources in the best possible manner to achieve cost-efficient facilities. After reviewing the concepts included in the efficiency group of the affinity diagram, Figure 36 shows that two main sub-objectives were identified: operational efficiency and resource efficiency. The intent of operational efficiency is the collocation of functions to improve operations. Concepts from the content analysis that support operational efficiency include “efficient and effective base operating environment,” “improve operational efficiency,” and “maximum operating efficiency.”

Figure 36 – Efficiencies Branch

Figure 37 shows the operational efficiencies objective and its sub-objectives. In general, operational efficiencies deal with ensuring work functions are in the right place and are correctly sized. To be more specific, the "right size and place" goal directs the armed forces to "locate, size, and configure defense installations and facilities to meet the requirements of today's and tomorrow's force structures" (OSD Posture Statement, 2001:ii).

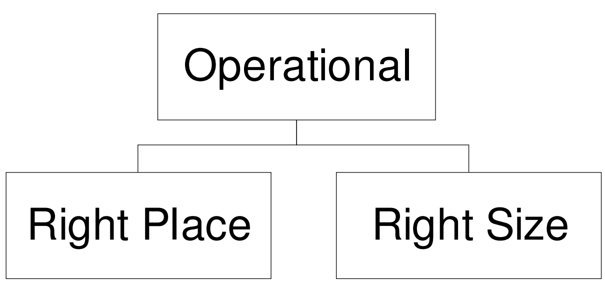

Figure 37 – Operational Efficiencies with Sub-objectives

Resource efficiency is concerned with making the best use of limited resources. Shown in Figure 38, two specific concepts found during the doctrine review included the effective use of facilities (i.e., joint-use facilities) and economics. Joint-use facilities are facilities used by organizations from two or more branches of the armed services, thereby improving the effective use of facilities. Economics, on the other hand, addresses the return on investment of facilities. The current military construction model encourages return on investment by awarding additional points for facilities that have a payback period of less than 10 years.

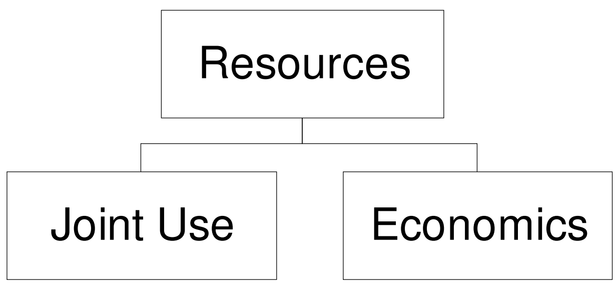

Figure 38 – Resources Efficiencies with Sub-Objectives

The bottom-tier sub-objectives (right place, right size, joint-use, and economics) for the efficiencies branch represent a sufficient level of decomposition to apply measures for evaluating alternatives. Five discrete measures were selected for these sub-objectives as shown in Figure 39. As the figure indicates, three of the sub-objectives have a single measure associated with each of them. Each of these measures are based on a Yes/No criterion. The single dimension value function (SDVF) for these measures award the

maximum value of "1" for a "Yes" score and the minimum value of "0" for a "No" score. The fourth sub-objective, right size, has two measures associated with it. Similar to the other measures, consolidation is based on a Yes/No criterion. The remaining measure, footprint reduction, could receive three different scores: "No reduction," "Reduction of less than 100 percent," and "Reduction of more than 100 percent." The values associated with each of these scores are 0, 0.7, and 1, respectively.

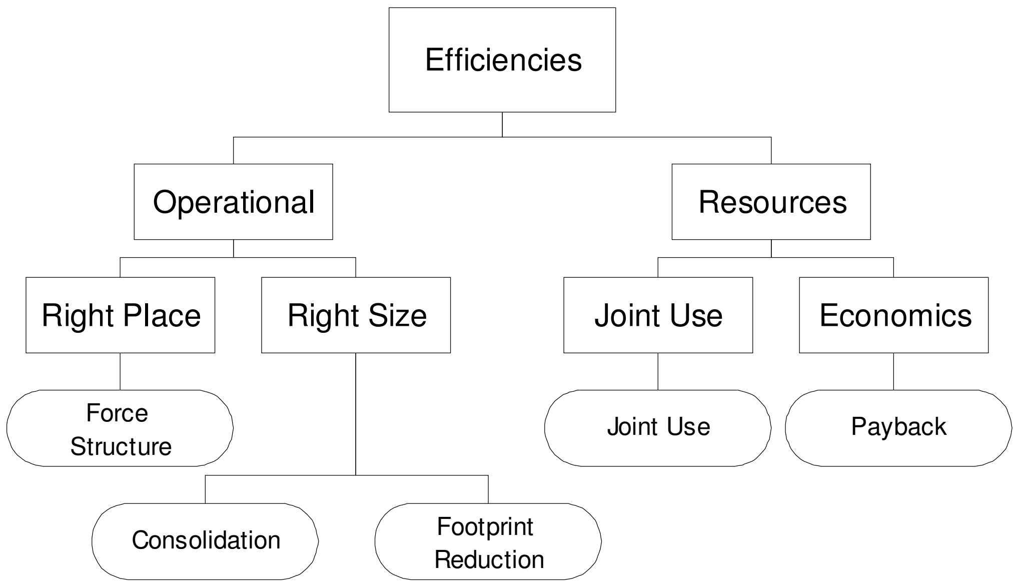

Figure 39 – Efficiencies Branch with Measures

4.2.2.4 Operational Support Branch. The operational support branch of the hierarchy focuses on the support a facility construction project provides to the primary mission of an Air Force base. The primary mission is the purpose or role the base fills during wartime. The author's review of doctrine uncovered three major sub-objectives

that support the operational support objective: readiness, responsiveness, security, and missions. Missions was added as a fourth major sub-objective and will be explained later. Figure 40 shows these areas.

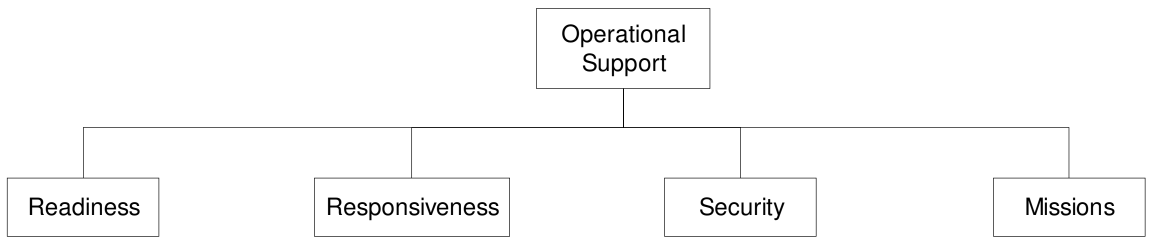

Figure 40 – Operational Support Branch

The OSD Posture Statement explains that since 69 percent of the department's facilities are rated C-3 or C-4, we must restore readiness and prevent this from happening again (OSD Posture Statement, 2001:i). Readiness is measured using the installation readiness rating system introduced by the DoD in 1999. The military construction program is primarily responsible for construction of new facilities to provide capability that did not previously exist and recapitalization of existing facilities. Air Force civil engineers commonly refer to these two distinct responsibilities as "deficit construction" and "restoration and modernization". Consequently, reduce deficit and restore and modernize (R&M) fully describe the readiness sub-objective. Figure 41 shows the sub-objectives supporting readiness.

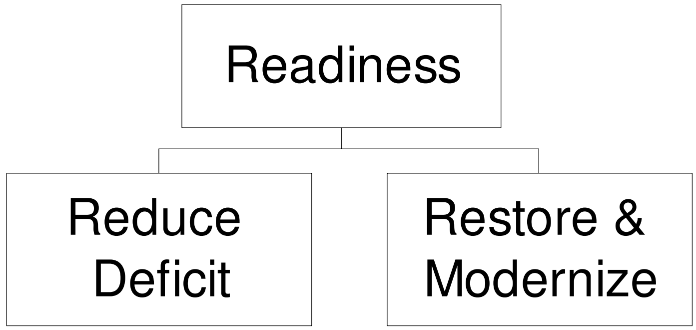

Figure 41 – Readiness with Sub-Objectives

In some cases, facilities and/or infrastructure do not exist but are required to support the mission. The reduce deficit sub-objective speaks to this readiness need. Additionally, restore and modernize addresses the need to fix degraded facilities so they can better support the mission. The Annual Planning and Programming Guidance for fiscal year 2004 and the Facilities Investment Plan also address the need to focus on installation readiness. Outcome 14 within the programming guidance directs a "focus on restoring and modernizing existing facilities and infrastructure, and concentrate projects on eliminating C-3/C-4 rated facility classes by 2010" (FY 2004 APPG, 2003:47). Furthermore, the Facilities Investment Plan reports one of the Defense Planning Guidance goals is to "target the recapitalization investment to restore the readiness of existing facilities to at least C-2 status, on average, by the end of 2010 (Facilities Investment Plan, 2002: 1). The plan incorporates this defense-wide requirement into its Air Force Facilities Investment goals shown in Figure 42.

USAF Facilities Investment Goals

1. Ensure mission readiness
2. Provide facilities necessary to support the acquisition of new weapons, equipment, and systems
3. Sustain facilities and infrastructure through their intended design life or until no longer required
4. Ensure adequate housing for all Air Force members and their families no matter where they live
5. Improve overall facility conditions to acceptable standards across all installations
6. Recapitalize obsolete and/or deteriorated real property assets at the end of their useful life
7. Pursue efficiencies in facility and infrastructure management, and reduce future costs

Figure 42 – Facilities Investment Plan Goals
(Facilities Investment Plan, 2002)

Furthermore, from a measurement perspective, the plan clarifies that “we will closely monitor progress toward eliminating C-3 and C-4 rated facility conditions and ensure investment is focused on the most critical Air Force restoration and modernization requirements” (Facilities Investment Plan, 2002: 1). Finally, the Air Force Doctrine Document 2.4-4, the Civil Engineer Strategic Plan, and Air Force Instruction 32-1021 address the readiness objective either directly by mentioning readiness or through related terms such as modernization, meeting validated requirements, etc.

A second objective under operational support is responsiveness. The Office of the Secretary of Defense (OSD) Posture Statement explains responsiveness in terms of having facilities in time to support missions (OSD Posture Statement, 2001:5). The Facility Investment Plan emphasizes responsiveness when it states “recapitalizing our facilities and infrastructure will ensure we have the right facilities at the right time … to

support military readiness" (Facilities Investment Plan, 2002: 24). Figure 43 presents sub-objectives under responsiveness.

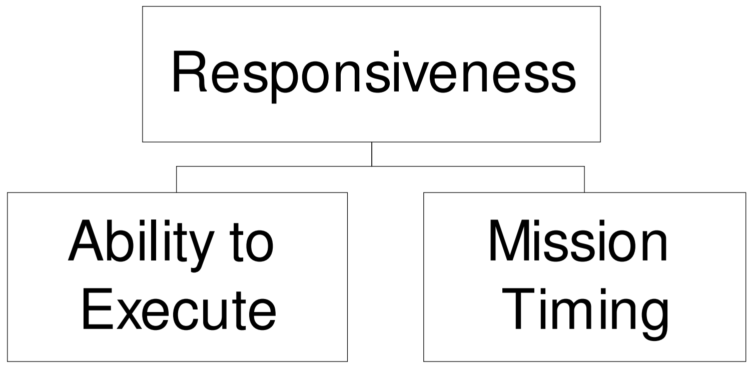

Figure 43 – Responsiveness with Sub-Objectives

A facility that is not available in time to support the mission fails to achieve the responsiveness sub-objective. Sub-objectives under the responsiveness sub-objective include ability to execute and mission timing. Ability to execute is straightforward. It touches on the "delivery in timely manner" concept found in the OSD Posture Statement. A facility can only start supporting the operations once it is completed. The construction time for a military construction project depends on the details of the project. Therefore, any manner that a project can be accelerated to ensure delivery in a timely manner has value. One such method is design-build. In design-build, "the architect of record and the construction contractor collaborate to provide the best balance between design, construction technology, and cost" (PM Guide, 2000). One benefit of design-build is a speedier schedule since "certain elements of construction [can] proceed simultaneously

with design" (PM Guide, 2000). Mission timing depends on the priority of a project and long-term planning. A desired aim for building the future as stated in the Civil Engineer Strategic Plan is to "directly link planning priorities with resource allocation process" (Civil Engineer Strategic Plan Volume 2, 2000: i). This is recognition of the importance of priorities and long-term planning.

The third objective synthesized from the six guiding documents was security. Security does not have any sub-objectives under it. According to Air Force Doctrine Document 2.4-4, "security and, more specifically, base operability and defense are part of the primary missions of combat support" (AFDD 2-4.4, 1999:110). Base infrastructure provided through the military construction program ensures a secure operating environment for executing the primary mission. In today's world, the primary threat to most Air Force installations is terrorism. The FY2004 Annual Planning and Programming Guidance directs a focus on "mitigat[ing] identified terrorism and force protection vulnerabilities" (FY2004 APPG, 2003: 45). Effective facility actions may include enhancements to the base perimeter, relocation of facilities, or construction of joint civilian and military command centers. Constrained funding requires a tradeoff between achieving the security sub-objective and the other objectives of readiness, responsiveness, and missions.

The final objective under operational support is missions. Figure 44 shows this objective. The author did not originally include this objective, although in retrospect it is clearly represented in the affinity diagram through such concepts as administrative support, infrastructure investment, infrastructure supporting operations, logistical support, and projection of aerospace power. The author added missions as a fourth

objective under operational support on the recommendation of a major command programmer during a subject matter expert review of the hierarchy. Mission captures the values of directly supporting a base's combat capability or mission support. Missions is divided into combat capability and mission support. These divisions reflect the differing value between an alternative that enhances combat capability and one that helps mission support. Examples of combat capability include airfields, squadron operations facilities, airfield tower, and other operations facilities. On the other hand, mission support facilities include administrative facilities, base civil engineer shops, transportation, and logistics facilities.

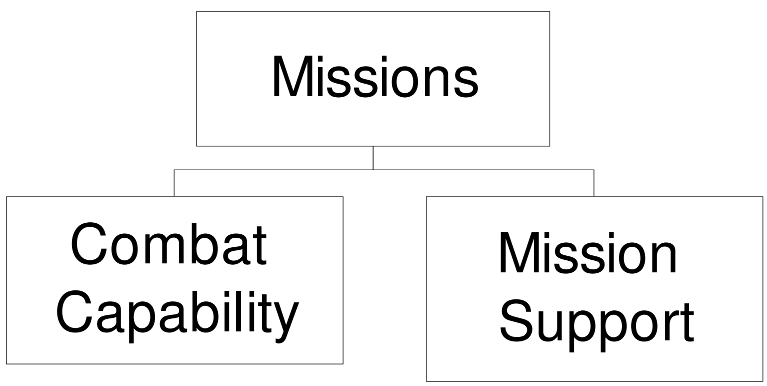

Figure 44 – Missions with Sub-Objectives

Figure 45 shows the operational support branch of the hierarchy and the objectives that fully encompass the operational support objective. Each objective is further decomposed into sub-objectives to more narrowly define them. The readiness objective contains two sub-objectives labeled "reduce deficit" and "restoration and

modernization." The responsiveness objective is supported by "ability to execute" and "mission timing." Security, as defined above, has no further objectives since it is sufficiently narrow to apply a measure. The final objective, missions, is decomposed into "combat capability" and "mission support."

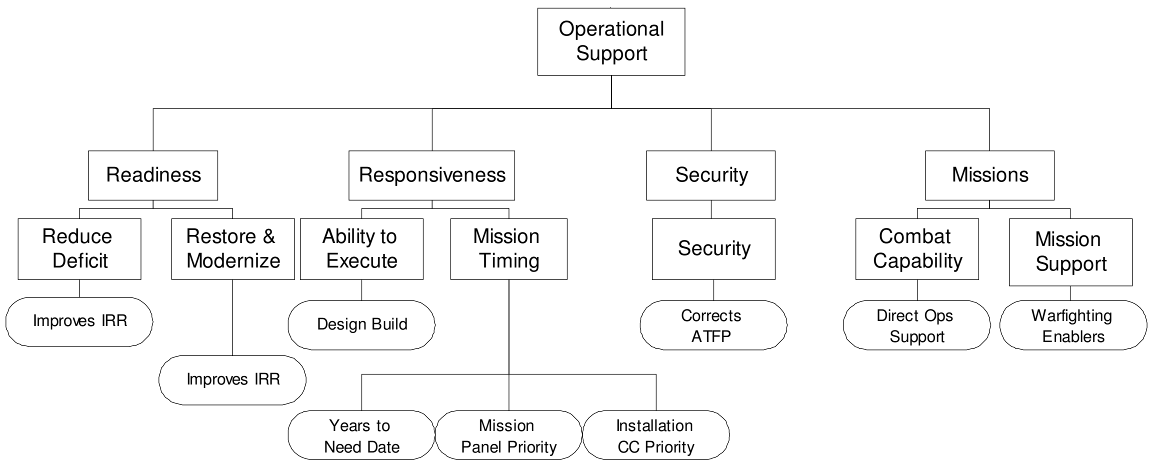

Figure 45 – Operational Support Branch with Measures

In either deficit reduction or R&M, the chosen metric is the DoD's installation readiness rating system. Furthermore, the single dimension value function shown in Figure 46 represents "improves IRR" for either reduce deficit or R&M. The rationale for assigning value for the improves IRR measure is based on the Facilities Investment Plan goal of eliminating C-3 and C-4 requirements. The single dimension value function assigns a full value of "1" for a project that targets an installation's facility classes rated C-4. Similarly, "0.8" of full value is awarded for C-3. Conversely, a minimal value of "0.3" is awarded for C-2 while a project that targets a C-1 facility class has no value.

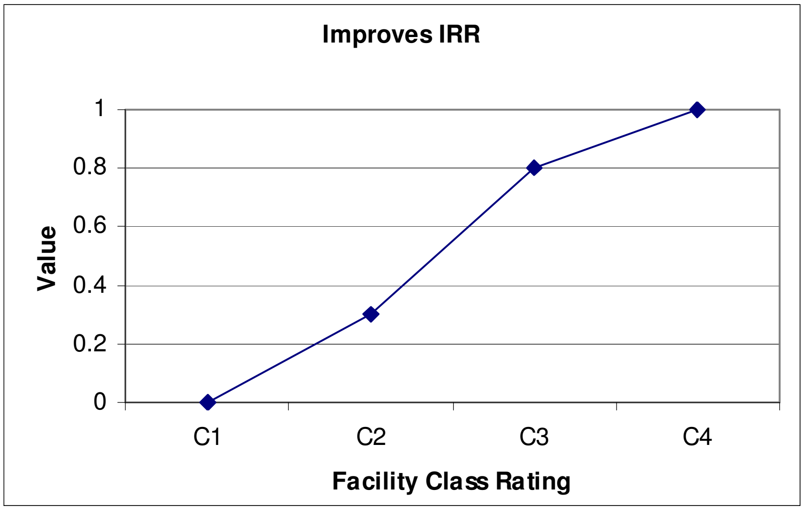

Figure 46 – Improves IRR Single Dimension Value Function

There are four measures that help assess the value for the sub-objectives ability to execute and mission timing. Ability to execute is directly measured by the design-build measure. An alternative that employs the design-build methodology receives a full-value of "1" while all alternatives that do not use design-build receive "0" value. The mission timing sub-objective is measured by three measures. The measures include years to need date, mission panel priority, and installation commander priority. The years to need date measure mimics the mission timing measure used in the existing military construction prioritization model. An alternative receives full value of "1" for alternatives that directly support synchronized arrival of a mission increase (Facilities Investment Plan, 2002: 20). All other alternatives receive "0" value. Ideally, this measure would capture a more comprehensive range of scores from near synchronization to overdue. Unfortunately, a lack of data required the simpler use of the measure. The mission panel

priority measure recognizes the importance of placing an Air Force perspective on facility requirements. The mission panel is in a position to transcend individual installation needs and assess the relative importance of the alternatives in a broader scope. The measure assigns value based on the priority assigned by the panel, which is based on a ranking of projects that fall within the purview of the mission panel. The measure is an inverse function of the panel's priority.

$$Value = \frac{1}{Panel\ Ranking}$$

For example, the mission panel's priority 1 project receives full value of "1" while the panel's priority 10 project receives a value of "0.1" for the mission panel measure. Finally, the third measure supporting mission timing is installation commander priority. Similar to mission panel priority, this measure assesses the importance placed on an alternative by the installation commander. A key distinction is the use of the installation commander's priority instead of the current major commander's priority. The rationale for using installation commander's priority is rooted in idea that the installation commander understands the needs of the installation best. A major commander's prioritization of all installations under his/her command presumes that one installation's top requirement is more pressing than another's. The installation commander priority measure follows the same single dimension value function methodology as the mission panel priority measure and uses an inverse relationship.

$$Value = \frac{1}{Installation\ Commander\ Ranking}$$

Each of the remaining sub-objectives has one measure to assess the value an alternative provides. Security is directly measured by answering the question "Does this project correct a documented anti-terrorism force protection (ATFP) problem?" Alternatives that correct AFTP problems receive the full value of "1" while all others receive "0" value. Similarly, the combat capability sub-objective is measured by answering the question "does the alternative provide direct operational support?" Alternatives that do provide direct operational support receive the full value of "1" while others receive "0" value. Finally, the measure for mission support involves asking the question "does the alternative provide mission support other than direct operational support?" Alternatives with a "yes" score receive a value of "1" while all others receive a "0" value.

4.2.2.5 Quality of Life Branch. The quality of life objective is the third and final objective in the top tier of the value hierarchy. The quality of life branch directly supports the Air Force Strategic Plan goal of Quality People. The Air Force seeks to attract and retain the highest quality people. One factor in attracting and retaining quality people is the quality of life on an installation; specifically the quality of its facilities. The author's review of the doctrine, policy, and guidance documents yielded numerous references to quality of life concepts such as installation excellence, enduring facilities, compliance with quality standards, and quality working and living environment. Five of the six documents reviewed contain specific reference to "Quality of Life." The sixth document, Air Force Instruction 32-1021, references "compliance with quality standards;" a subset of the quality of life concept. Quality of life can be broken into two

objectives, “Sense of Community” and “Workplace Quality of Life,” as shown in Figure 47.

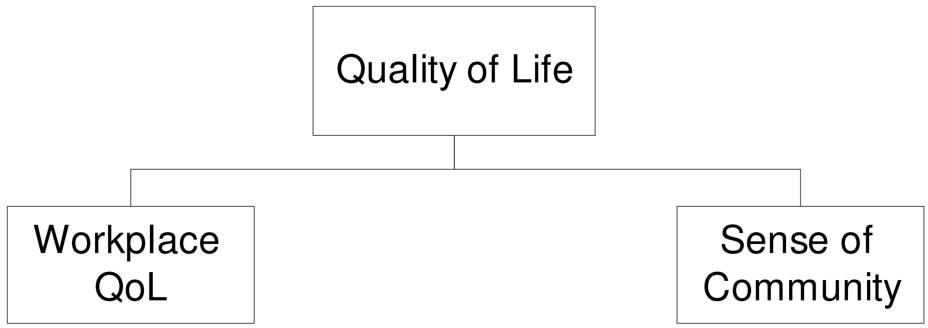

Figure 47 – Quality of Life Objective

In his testimony before the House Armed Services Committee in 2001, the Air Force Civil Engineer explained that quality of life extends into the workplace. An airman who has to move buckets around in an aircraft hangar because of a leaking roof is an example of facilities not providing the high quality support airman have come to expect (Armed Services Committee, 2001). Two sub-objectives that describe workplace quality of life include modern facilities and safe facilities. The OSD Posture Statement , AFDD 2-4.4, and the Civil Engineer Strategic Plan reference concepts relating to these sub-objectives when they address healthy facilities, quality of service, perception of overall quality, and installation excellence. Figure 48 shows Workplace QoL and its two sub-objectives.

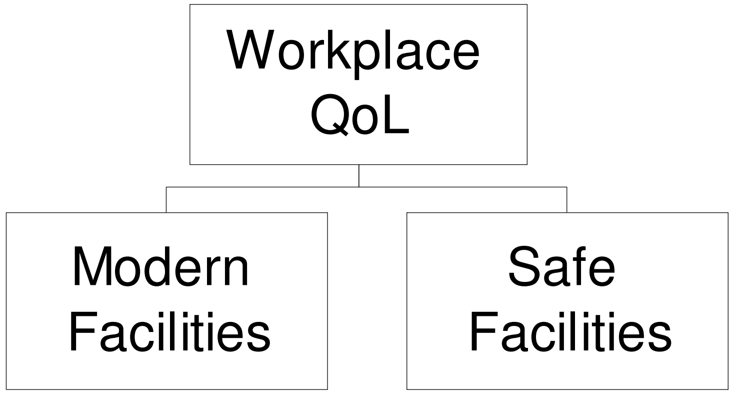

Figure 48 – Workplace Quality of Life with Sub-Objectives

Former Chief Master Sergeant of the Air Force testified before the House National Security Committee on Morale, Welfare and Recreation Oversight in 1998. He described sense of community as a sense of belonging and attributed it directly to retention and overall readiness of the Air Force (Benkin, 1998). The sense of community objective can be further divided into support facilities and promotes community sub-objectives as shown in Figure 49. Support facilities include primarily facilities that enhance morale such as fitness centers, dormitories, child development centers, and bowling alleys. Promotes community captures the value of strengthening the Air Force family especially at installations with large populations that tend to be less integrated.

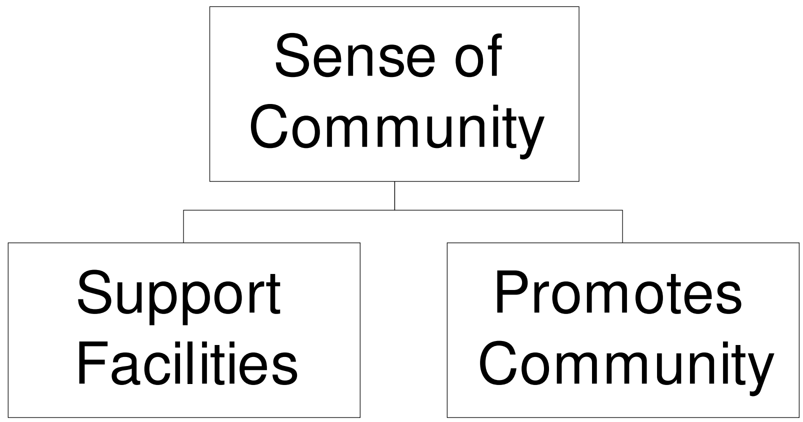

Figure 49 – Sense of Community with Sub-Objectives

The measures selected for determining how much value an alternative provides under the quality of life objective are shown in Figure 50 and include average facility age, eliminates safety violation, support facility, and population. Facility age measures the value for modern facilities. Facility age is commonly used as an indicator of facility condition (Facilities Recapitalization Metric, 2002). Eliminates safety violation is a straightforward measure that helps promote projects that improve working conditions. Additionally, the support facility measure encourages investment in support facilities to help improve retention of personnel. Finally, the population metric favors investments in facilities that benefit the maximum number of personnel.

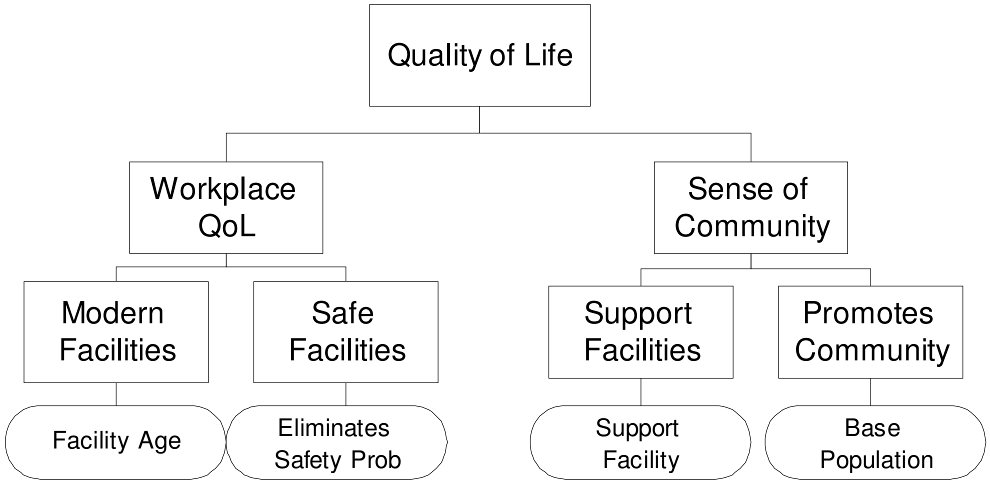

Figure 50 – Quality of Life Branch with Measures

The single dimension value function for average facility age is based on the desired 67-year recapitalization rate stated in the Facilities Investment Plan. Each alternative score is based on the average age of its category code at the installation in question. Value is assigned to the score according to the following value functions

$$score \geq 67: \quad Value = 1$$

$$score < 67: \quad Value = \frac{score}{67}$$

The eliminates safety violation and support facilities measures are "Yes/No" measures where a "Yes" score receives a value of "1" and a "No" score receives a "0" value. An alternative scores a "Yes" for safety violation if the programming document references existing safety discrepancies that will be eliminated. Also, an alternative that involves a morale, welfare, and recreation type facility receives a "Yes" score for support facility. Finally, the population measure assigns values to scores ranging from less than 2,000 to

greater than 10,000. The total installation population is the score for this measure. The single dimension value function for this measure consists of five categories as shown in Table 7. Appendix C contains the supporting population data used for scoring the alternatives.

Table 7 – Population Measure Value Function

Score	Value
< 2,000	0
2,000 – 3,999	0.3
4,000 – 5,999	0.5
6,000 – 10,000	0.8
> 10,000	1

This concludes the section on describing the value hierarchy developed using the gold standard. It is important to reiterate at this point that the author personally developed the single dimension value functions for the measures as a proxy decision maker. The objectives and sub-objectives, on the other hand, are rooted directly in existing Department of Defense and Air Force doctrine, policy, and guidance. Subject matter experts from three major commands reviewed the hierarchy for accuracy and completeness. The author incorporated suggestions from the subject matter experts insofar as these suggestions agreed with information found in the six source documents.

4.2.2.6 Hierarchy Weights. The weighting of the value hierarchy is as critical as where the objectives fit in the hierarchy. The use of an affinity diagram to construct the hierarchy implies a bottom-up approach to the construction of the hierarchy. However, since the individual concepts were grouped together and then re-assessed as to

importance, the hierarchy was actually developed from a top-down perspective. Kirkwood (1997) recommends a local weighting approach when a hierarchy is constructed in this fashion because the decision maker can more readily make tradeoffs between objectives within the branches. Furthermore, since the true decision maker for the MILCON model (i.e., Air Force Chief of Staff) was inaccessible, the researcher acted as the proxy decision maker and assigned weights locally for the hierarchy.

The top-tier objectives supporting the fundamental objective include efficiencies, operational support, and quality of life. Using the local weighting methodology, the author assigned decimal weights totaling 1.0 for these three objectives. Operational support received a weight of 0.5, which implies that half the value of achieving the fundamental objective comes from operational support. This is consistent with the emphasis placed on supporting the mission surmised from the six source documents. Efficiency and quality of life are roughly equal; however, the frequent references to quality of life compared to efficiency justified a slightly higher weight. Therefore, the resultant weights for quality of life and efficiency were 0.3 and 0.2, respectively. Similarly, the author assigned the remaining weights locally down each branch of the hierarchy.

Figure 51 shows the efficiency branch along with its objectives and their respective sub-objectives. The operational objective was given 0.6 weight and the resources was given 0.4 weights. Furthermore, under operational, right size was decided to be slightly more important than right place. Right size was given 0.6 weight and right place 0.4. On the other hand, under resources, joint use and economics were decided to carry equal weight and each received half the local weight. Finally, the only measures

that required local weight tradeoffs involved the two weights under right size. A premium has been placed on sustainment funds and consequently the Department of Defense is stressing footprint reduction through demolition programs. Given this emphasis, footprint reduction received 0.65 of the local weight and consolidation received 0.35. The numbers in parenthesis represent the global weights.

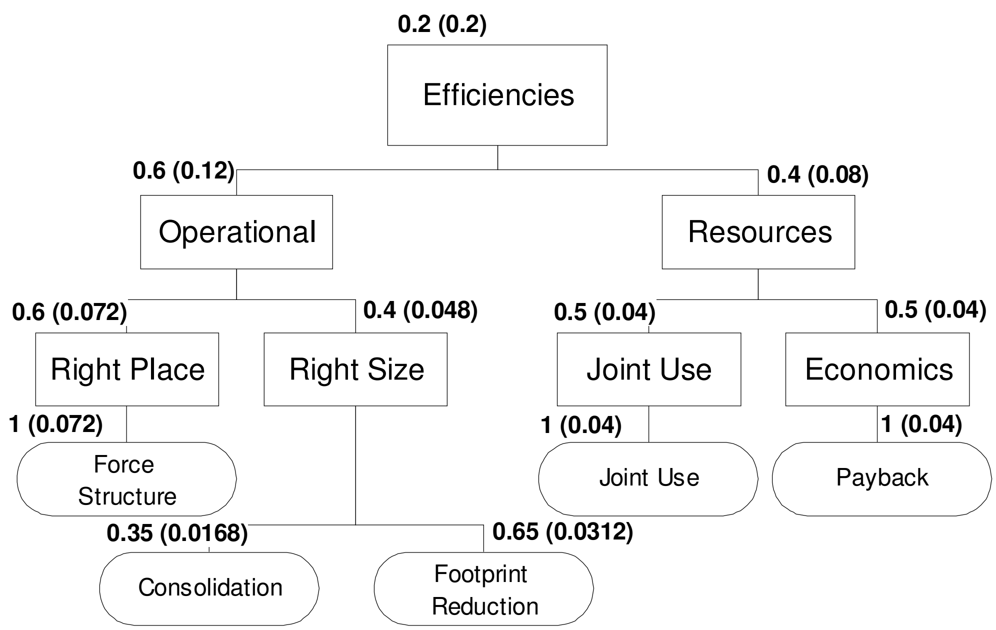

Figure 51 – Local (Global) Weights for Efficiencies Branch

Figure 52 shows the operational support branch local weights (with global weights in parenthesis). The first tradeoff involved readiness, responsiveness, security, and missions. Readiness was given almost half the value because it was the most prevalent goal in the reviewed doctrine. It was given a 0.45 local weight. Missions was determined to be the next most important objective within this branch. Missions received

a 0.35 weight. Next, responsiveness is almost half as important as missions and consequently was assigned a 0.15 weight. The remaining 0.05 was put against the remaining objective, security.

Under readiness, reduce deficit and restoration and modernization have approximately equal importance and consequently were each assigned 0.5. Alternatively, under responsiveness, mission timing is almost all of the value. It received a 0.9 weight because it includes important sub-objectives including installation commander priority and mission panel priority. The remaining 0.1 was assigned to ability to execute. Security only had one sub-objective and one measure so they received full local weight for their respective tiers. Under the final branch for the operational support objective, missions is made up of combat capability and mission support. Combat capability is the operational side of missions and therefore twice as important as mission support. The weights were assigned accordingly 0.7 and 0.3.

Mission timing is the only sub-objective in the operational support branch that has more than one measure and requires tradeoff among local weights. The commander knows his/her requirements better than anyone. Therefore, more than half the weight was given to installation commander priority. Next, the functional experts from the mission panels are responsible for the Air Force's cross-cutting issues as directed by the enhanced corporate structure. A 0.3 weight was assigned to the mission panel priority and the remaining weight of 0.1 was assigned to the years to need date.

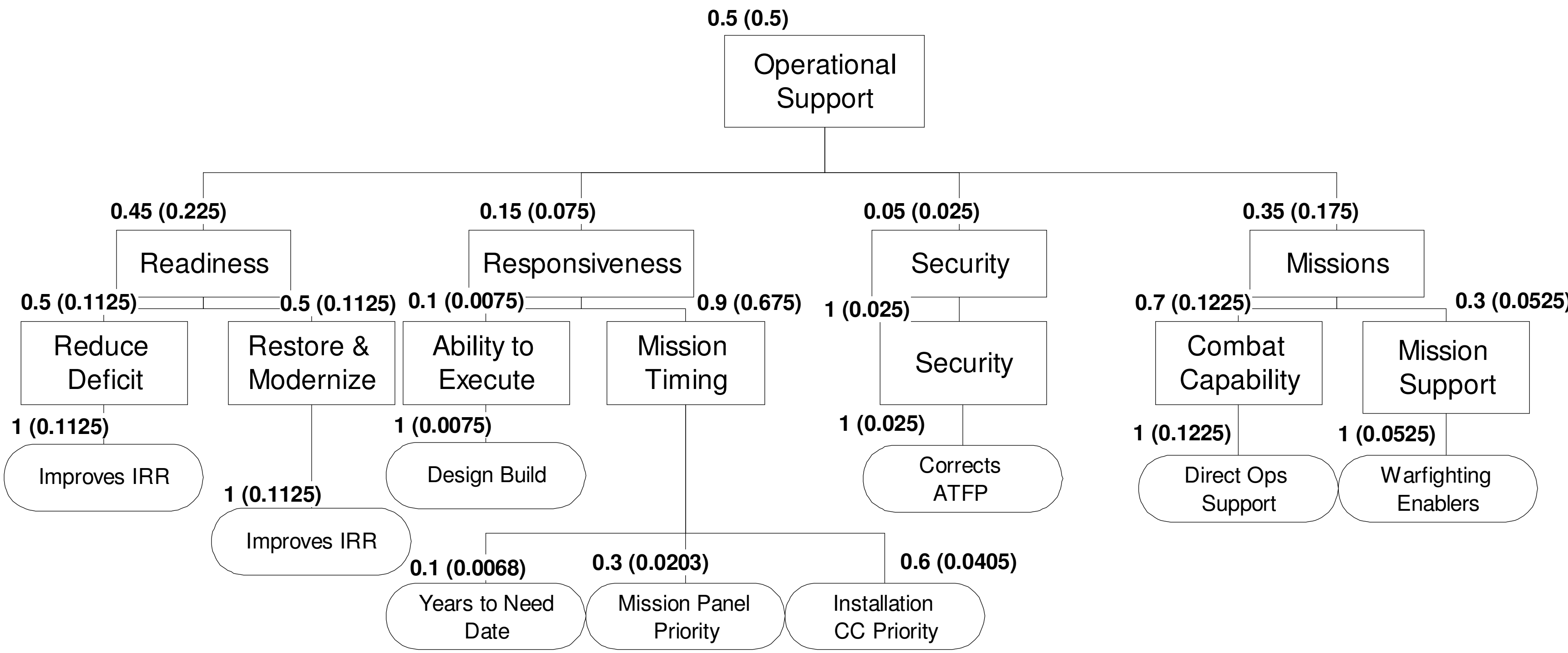

Figure 52 – Local (Global) Weights for Operational Support Branch

The quality of life (QoL) branch shown in Figure 53 is supported by workplace QoL and sense of community and their sub-objectives. According to senior Air Force leadership, the workplace QoL is an important issue and directly affects readiness and retention of our valued personnel (Robbins Testimony, 2001). Workplace QoL was weighted 0.6 while sense of community received the remainder of the weight, 0.4. As the proxy decision maker, the author decided that within workplace QoL, modern facilities is twice as important as safe facilities. Local weights of 0.7 and 0.3, respectively, were assigned. Finally, support facilities provide the rest and relaxation necessary for our airmen in a high operations tempo environment. The importance of support facilities is 0.8 and promotes community is 0.2. Since all of the measures are associated with a single objective, they all received local weights of one by default.

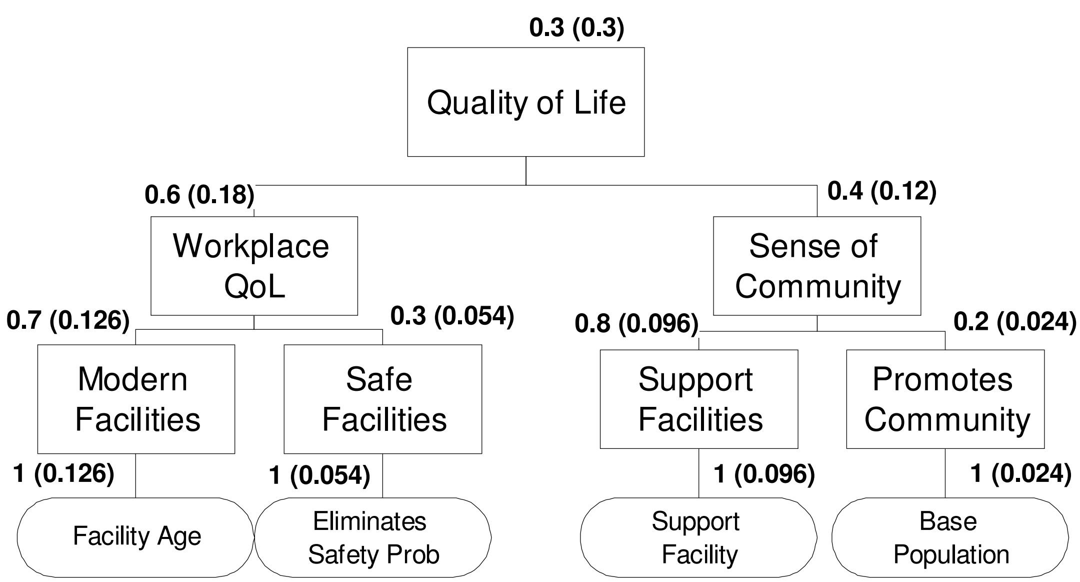

Figure 53 – Local (Global) Weights for Quality of Life Branch

Since it is easy to lose perspective on the contribution a specific measure provides to the overall value of a decision, a locally weighted hierarchy benefits from a comparison of the measures' global weights. Some measures may have such large weights that they drive the decision while others that are weighted too small have no impact on the decision. Consequently, it is useful to conduct a comparison of global weights to ensure the measures' weights are relatively balanced. Figure 54 shows the global weights of the 18 measures. Appendix D contains local weights for the hierarchy.

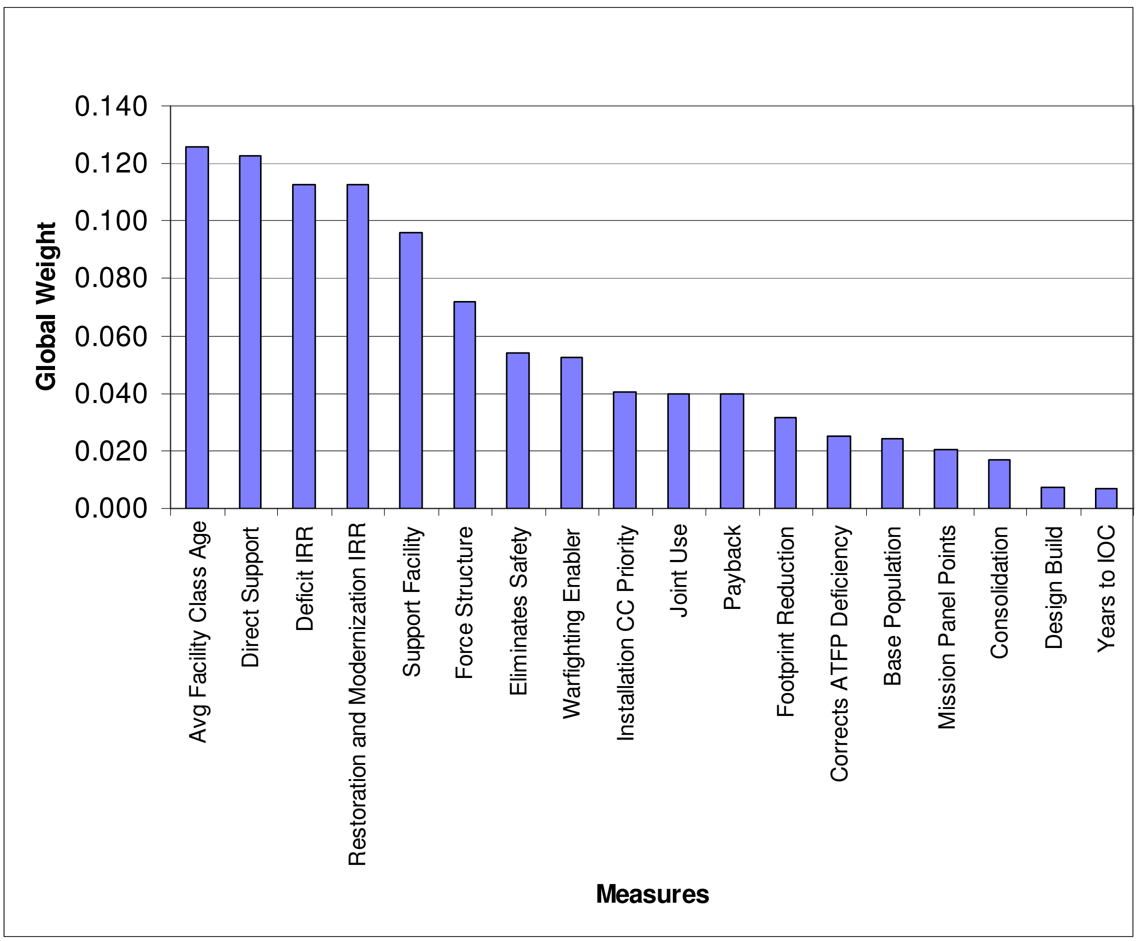

Figure 54 – Global Weights of Measures

The distribution shows that four measures account for almost half the value of the decision. Similarly, a number of measures appear to contribute very little to the overall value of the decision. In a situation such as this, the decision maker may consider adjusting the hierarchy weights or eliminating these weights from the hierarchy; the choice ultimately rests with the decision maker. For this research, the weights were not adjusted.

4.2.2.7 Assumptions in Scoring the Alternatives. Accurate assessment of the alternatives (i.e., projects) is predicated on accurate and complete data. For many measures, the availability of existing data facilitated the direct scoring of alternatives. In some cases, however, a set of assumptions were used to compensate for missing or incomplete data. Although applying assumptions as a type of pseudo-measurement is normally not desirable, consistent application of the assumptions avoided excessive alternative bias. Assumptions and sources used for scoring are included in Appendices E, F, and G.

4.2.2.8 Deterministic Analysis. The current MILCON model consisted of four major scoring areas. Each project was awarded points based on seven measures for maximum point total of 100 points (102 for overseas projects). The proposed MILCON model uses a different approach. The proposed model was derived from the value hierarchy. The 18 measures, their value functions, and their global weights are the mechanisms used by the proposed model to score the projects. The deterministic analysis involved scoring 257 projects that were submitted by the major commands for the FY2004 MILCON program. Projects not submitted for scoring under the existing model

(i.e., corporate adjustments) did not qualify for scoring under the proposed model for two primary reasons: (1) these projects did not contain the critical data required for scoring and (2) corporate adjustments do not provide any insight into the effectiveness of the existing model since they are treated separately and not scored by the model's criteria. The total value of the 257 projects exceeded $2.5 billion, and the value of projects involving C-3 and C-4 facility classes totaled approximately $1.7 billion. Since a typical annual MILCON program ranges from $500 million to almost $1.5 billion, four program sizes were evaluated: $500 million, $800 million, $1.2 billion, and $1.5 billion. A detailed comparison of results between the existing and proposed model at comparable funding levels is presented in the section titled "Direct Model Comparisons." Appendix H contains the comprehensive project rankings for the existing model and Appendix I contains the rankings for the proposed model.

4.3 Systems Dynamics Evaluation of Proposed Model

The proposed MILCON scoring model, developed in the previous section using the VFT methodology, was primarily designed to tradeoff value between a large number of alternatives in order to pick the alternatives that best met the objectives of the MILCON program. Additionally, a better understanding of the behavior of the current MILCON model from phase one of this research helped in the development of the proposed model. In order to understand how the proposed model will perform over time, key factors from the proposed model were placed in the system dynamics model. Otherwise, the basic framework for the MILCON system remained the same. This

section will only highlight the factors unique to the modeling of the proposed MILCON scoring model.

4.3.1. Influence Diagram Adjustments. The insight gained from evaluating the existing MILCON scoring model helped guide the development of the proposed model. The influence diagram shown in Figure 55 is similar to the one developed for the existing MILCON model (Figure 25). One notable difference is the recognition that the model's effectiveness is influenced by the level of C-3 and C-4 requirements. This feedback loop allows the system to adjust itself according to the level of requirements. One further addition to the diagram includes a "No corporate adjustments" policy. This policy is critical to the success of the MILCON scoring model in achieving the goal of eliminating C-3 and C-4 facility deficiencies. The final difference in the proposed model is that the plant replacement value and mission category/impact factors from the current MILCON model have been replaced with the average facility class age and IRR Results measures to represent the proposed model's behavior. Only these two measures of the 18 total measures were selected for model simplicity.

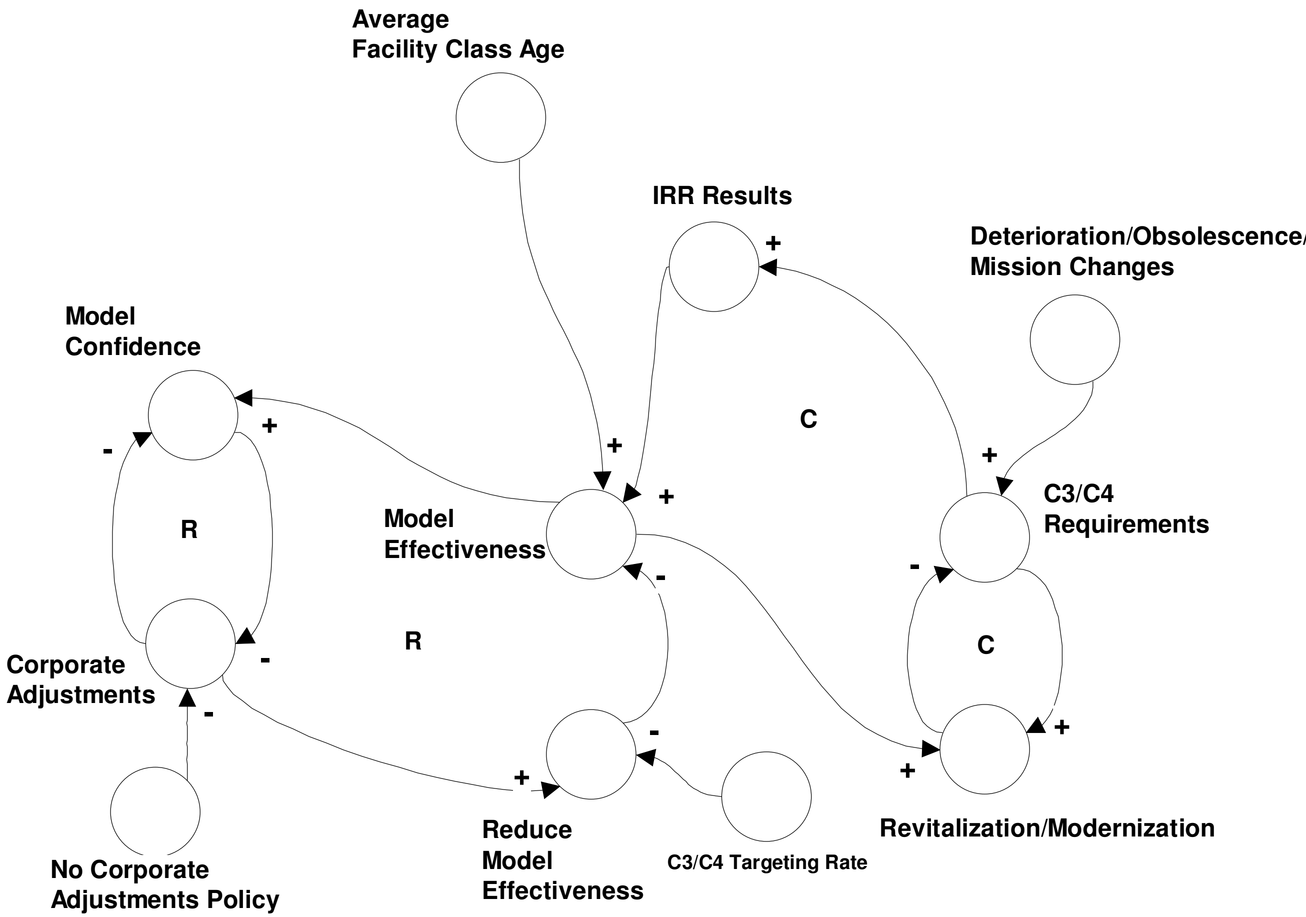

Figure 55 – Proposed MILCON Model Influence Diagram

4.3.2. Simulation. The flow diagram developed from the influence diagram is shown in Figure 56. Appendix J contains the Stella® equations. The basic structure did not change from the current MILCON model's flow diagram (Figure 30); however, the factors specific to the proposed model were substituted for the factors specific to the current model and a feedback from the C-3/C-4 requirements stock to the model effectiveness entity was put in place. The "No Corporate Adjustments" policy was also added to represent the final proposed system.

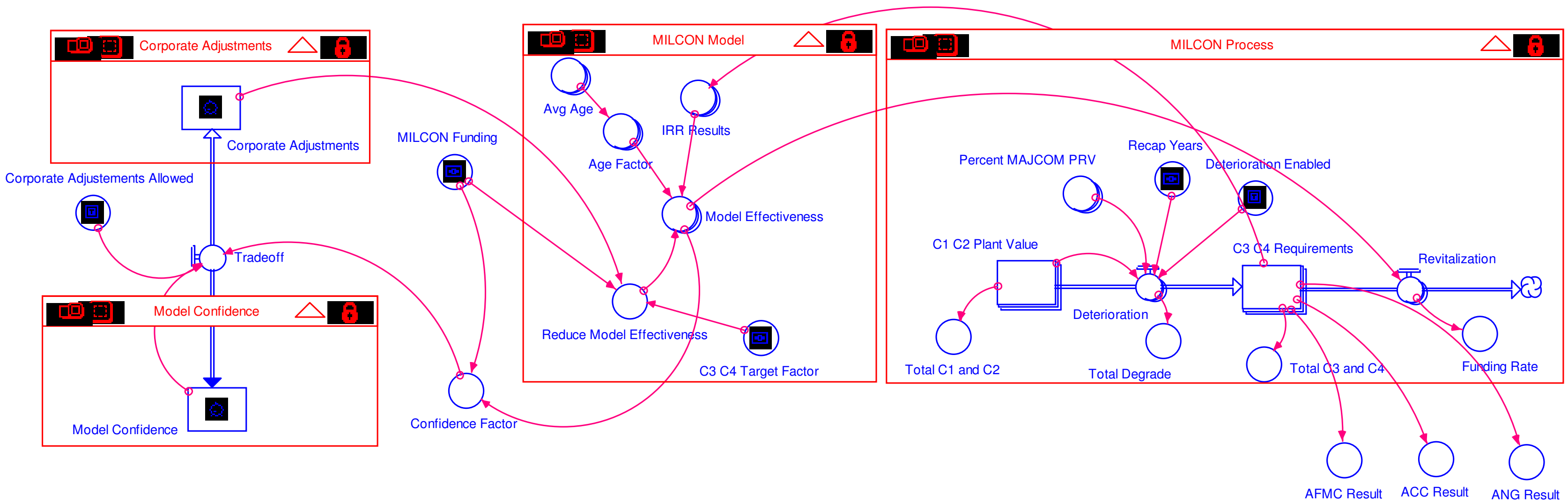

Figure 56 – Flow Diagram for System with Proposed MILCON Model

The resulting behavior of this system is shown in Figure 57. The plot shows how the levels of C-3 and C-4 requirements reduces in a linear fashion while funding levels remain high until all facility deficiencies are eliminated. This most optimal scenario exists with no deterioration and when the “No Corporate Adjustments” policy is in effect; the result is a rapid elimination of the C-3 and C-4 requirements. The exogenous variable, “MILCON Funding,” changes the rate of elimination since more funding means more requirements are eliminated. Unfortunately, as an exogenous variable, it is subject to influences not modeled in the system and beyond the scope of this research.

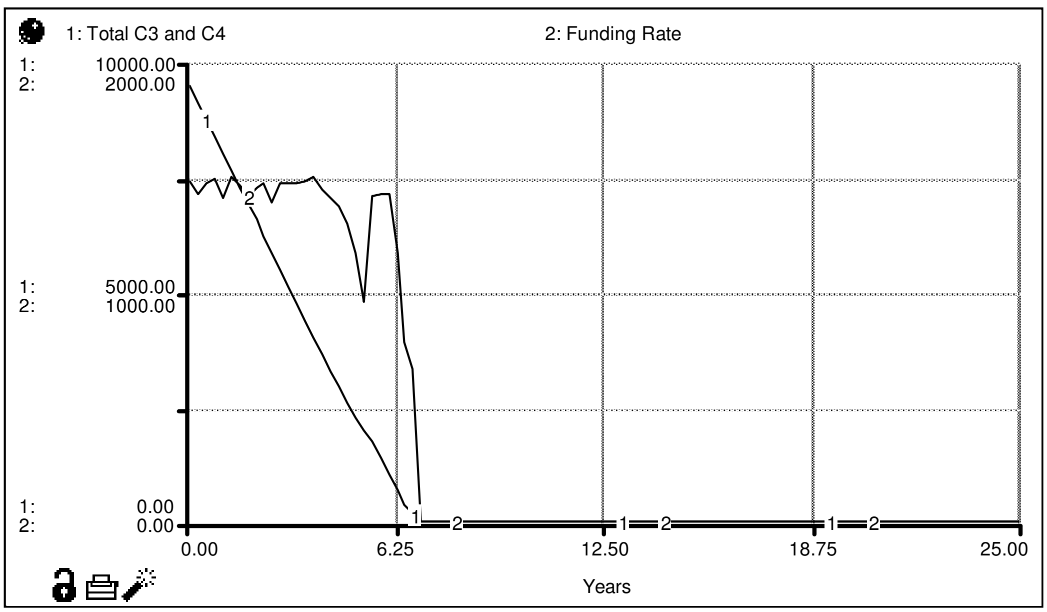

Figure 57 – Behavior of C-3/C-4 Requirements Stock: Proposed MILCON Model

Figure 58 shows the behavior of the C-3/C-4 requirements stock when deterioration is taken into account and a “No Corporate Adjustments” policy is in effect.

The rate of elimination is less favorable because the deterioration is offsetting the gains from the MILCON model. The "No Corporate Adjustment" policy keeps the funding rate from dropping to zero.

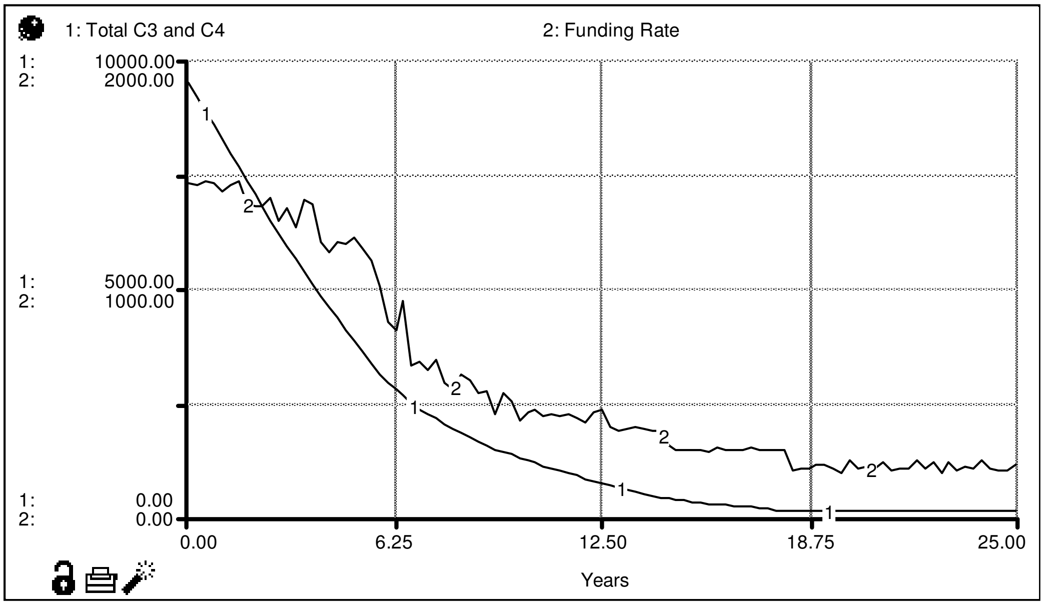

Figure 58 – Behavior of C-3/C-4 Stock with Deterioration

The comparison of three individual MAJCOM's results is presented for the proposed model as a comparison in Figure 59 (compared with Figure 34). ACC, as before, is most successful at eliminating its C-3/C-4 requirements. ANG, on the other hand, is significantly more successful. In the current model, ANG did not expect to eliminate all of its requirements within the 25-year time horizon. However, under the proposed model, not only does ANG eliminate its requirements, it does so very quickly. AFMC also experiences success in eliminating its requirements despite its facility class

limitations (majority of requirements RDTE) under the current model. These results indicate a substantial advantage in achieving the Air Force goal under the proposed MILCON model.

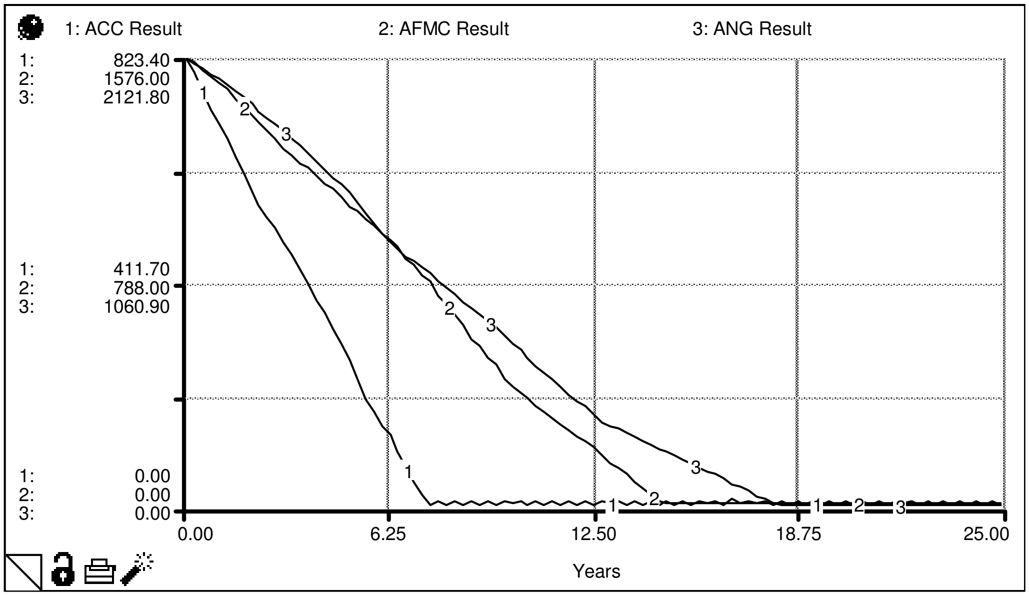

Figure 59 – MAJCOM C-3/C-4 Requirements Stocks: Proposed Model

4.4 Comparison of Current and Proposed Model

This section compares the results of the existing and proposed military construction prioritization models. The results of interest include the models' respective effectiveness at targeting C-3 and C-4 requirements, effectiveness at targeting older facilities, and share of program by major command.

4.4.1 Effectiveness at Targeting C-3 and C-4 Requirements. The effectiveness of each model was determined by dividing the total dollar amount of projects targeting

either C-3 or C-4 requirements by the overall program total. The effectiveness was determined for each of the four MILCON program sizes mentioned previously: $500 million, $800 million, $1.2 billion, and $1.5 billion, respectively. The effectiveness at targeting C-3 and C-4 requirements for each model is summarized in Table 8 and Table 9, respectively. The results indicate that the proposed model targets C-3 and C-4 requirements at a higher rate than the existing model. The average effectiveness of the existing model is 71.68 percent, which is 20 percentage points less than the proposed model average of 92.02 percent.

Table 8 – Effectiveness at Targeting C-3 and C-4 Requirements (Existing Model)

List	Targeted Amount ($000)	Non-Targeted Amount ($000)	Total List Amount ($000)	Percent Targeted
$500 million	386,200	113,350	499,550	77.31
$800 million	564,400	230,000	794,400	71.05
$1.2 billion	843,900	357,000	1,200,900	70.27
$1.5 billion	1,017,900	477,510	1,495,410	68.07

Table 9 – Effectiveness at Targeting C-3 and C-4 Requirements (Proposed Model)

List	Targeted Amount ($000)	Non-Targeted Amount ($000)	Total List Amount ($000)	Percent Targeted
$500 million	474,750	23,200	497,950	95.34
$800 million	753,850	34,000	787,850	95.68
$1.2 billion	1,065,350	126,350	1,191,700	89.40
$1.5 billion	1,309,500	184,600	1,494,100	87.64

4.4.2 Effectiveness at Targeting Older Facilities. The Department of Defense's 67-year recapitalization goal of is premised on the idea that each facility will be revitalized or replaced every 67 years (on average). The Air Force measure, the Facilities Recapitalization Metric, focuses on investment levels and the overall plant replacement value. Although investment levels and overall plant replacement value are the same for either model, it is of interest to explore how well each model supports the recapitalization goal. The average age of the facility classes represented by all projects submitted was 35.05 years. The maximum age was 69 years and the minimum was 2 years.

The distribution of average facility ages for the projects selected by either model was examined for each of the four MILCON program sizes mentioned previously: $500 million, $800 million, $1.2 billion, and $1.5 billion. Table 10 summarizes the average age for each list. The proposed model consistently selects projects that address the requirements of older facility classes. The overall average facility age for projects selected with the existing model is 37.50 years, while the overall average facility age for the proposed model is 41.27 years. These results indicate that the proposed model does a better job of targeting older facilities, thereby contributing to more effective facility recapitalization.

Table 10 – Age Targeting Comparisons (Existing vs Proposed Models)

List	Existing Model Average Age (Years)	Proposed Model Average Age (Years)	Delta (Years)
$500 million	38.29	42.04	+ 3.75
$800 million	38.32	42.71	+ 4.39
$1.2 billion	37.41	40.92	+ 3.51
$1.5 billion	35.97	39.40	+ 3.43

4.4.3 Share of Program by Major Command. The allocation of projects among the major commands is of particular interest since the existing model is almost exclusively based on fair share allocation according to PRV. For a MILCON program size of $500 million, the results are shown in Table 11. At this funding level, three major commands receive less funding under the proposed model than they did under the existing one; all other major commands experience an increase or remain the same. A closer look at the three major commands that "lost" funding uncovered some interesting facts – 53, 44, and 40 percent of the projects submitted by PACAF, AFMC, and USAFE, respectively, did not target C-3 and C-4 requirements. Additionally, the average facility age for projects targeting C-3 and C-4 requirements from these three major commands was 34.44 years. This average is significantly lower than the average of 42.04 years for projects funded under the proposed model for these commands. Finally, AFMC has the largest plant replacement value of the major commands; therefore, it has a significant advantage when competing under the existing model.

Table 11 – $500 Million List

	Existing Model		Proposed Model		Difference
MAJCOM	Share ($000)	Percent	Share ($000)	Percent	Share ($000)
11 Wg	13,600	2.72	13,600	2.73	0
ACC	67,650	13.54	77,850	15.63	10,200
AETC	27,300	5.46	76,600	15.38	49,300
AFMC	104,700	20.96	55,600	11.17	-49,100
AFRC	13,300	2.66	20,750	4.17	7,450
AFSOC	7,800	1.56	7,800	1.57	0
AFSPC	34,800	6.97	36,000	7.23	1,200
AMC	48,000	9.61	76,000	15.26	28,000
ANG	61,700	12.35	77,300	15.52	15,600
PACAF	62,500	12.51	21,700	4.36	-40,800
USAFA	23,000	4.60	23,000	4.62	0
USAFE	35,200	7.05	11,750	2.36	-23,450

Table 12 shows the results for a MILCON program size of $800 million. The program share comparison highlights some of the same issues described in the analysis of the $500 million program. A noteworthy addition to the list of major commands receiving less funding under the proposed model is AMC. For this command, 34 percent of the submitted projects did not target C-3 and C-4 requirements. Additionally, the average facility age for projects targeting C-3 and C-4 requirements was 35.5 years. This average is significantly lower than the average of 42.71 years for projects funded under the proposed model for this command.

Table 12 – $800 Million List

	Existing Model		Proposed Model		Difference
MAJCOM	Share ($000)	Percent	Share ($000)	Percent	Share ($000)
11 Wg	13,600	1.71	13,600	1.73	0
ACC	103,100	12.98	179,550	22.79	76,450
AETC	65,500	8.25	96,600	12.26	31,100
AFMC	170,500	21.46	125,200	15.89	-45,300
AFRC	17,100	2.15	20,750	2.63	3,650
AFSOC	7,800	0.98	7,800	0.99	0
AFSPC	64,600	8.13	68,000	8.63	3,400
AMC	94,300	11.87	76,000	9.65	-18,300
ANG	97,700	12.30	119,800	15.21	22,100
PACAF	86,000	10.83	36,000	4.57	-50,000
USAFA	23,000	2.90	23,000	2.92	0
USAFE	51,200	6.45	21,550	2.74	-29,650

Table 13 shows the results for a MILCON program size of $1.2 billion. The table contains an increasing number of major commands receiving less funding under the proposed model. This is due in part to the nature of the existing model – the larger the overall program size the more a major command's percentage of the funding converges with their plant replacement value percentage. The plant replacement values for the major commands are listed in Table 14 along with their respective percentage of the $1.2 billion MILCON program. The differences between the plant replacement value and the percent share within the existing model are due to below average project costs and/or inequities in the number of projects submitted. The existing model indiscriminately allocates the available program funding on a project by project basis. When a major command submits a project with a cost that is less than the average for the program, that major command lost program share potential. Increasingly under the existing model,

major commands submit their higher cost projects as their higher priorities. A further explanation for variances between plant replacement value and program share involves the number of projects submitted. Program guidance requires a major command to submit projects to attain a 67-year recapitalization rate (FY2004 APPG, 2002). In some cases, additional projects are accepted. Appendix K lists recapitalization rate by MAJCOM for the FY2004 program submittal. The additional projects were not removed from the list used for this analysis possibly contributing to a funding bias.

Table 13 – $1.2 Billion List

	Existing Model		Proposed Model		Difference
MAJCOM	Share ($000)	Percent	Share ($000)	Percent	Share ($000)
11 Wg	13,600	1.13	13,600	1.14	0
ACC	154,800	12.89	267,400	22.44	112,600
AETC	106,100	8.84	119,800	10.05	13,700
AFMC	271,200	22.58	162,600	13.64	-108,600
AFRC	23,550	1.96	53,750	4.51	30,200
AFSOC	7,800	0.65	7,800	0.65	0
AFSPC	110,650	9.21	76,300	6.40	-34,350
AMC	139,900	11.65	158,600	13.31	18,700
ANG	131,500	10.95	167,900	14.09	36,400
PACAF	137,600	11.46	72,800	6.11	-64,800
USAFA	24,300	2.02	23,000	1.93	-1,300
USAFE	79,900	6.65	68,150	5.72	-11,750

Table 14 – MAJCOM Program Share vs Plant Replacement Value Share

MAJCOM	Percent Share of $1.2 billion list	Percent Plant Replacement Value
11 Wg	1.13	0.4
ACC	12.89	14.8
AETC	8.84	9.0
AFMC	22.58	22.1
AFRC	1.96	3.8
AFSOC	0.65	0.5
AFSPC	9.21	11.1
AMC	11.65	11.2
ANG	10.95	7.0
PACAF	11.46	11.6
USAFA	2.02	1.5
USAFE	6.65	6.9

Finally, Table 15 shows the results for a MILCON program size of $1.5 billion. The program share comparison highlights some of the same issues described in the analysis of the $1.2 billion program.

Table 15 – $1.5 Billion List

	Existing Model		Proposed Model		Difference
MAJCOM	Share ($000)	Percent	Share ($000)	Percent	Share ($000)
11 Wg	13,600	0.91	14,550	0.97	950
ACC	181,900	12.16	368,500	24.66	186,600
AETC	118,900	7.95	147,700	9.89	28,800
AFMC	364,400	24.37	178,600	11.95	-185,800
AFRC	25,200	1.69	66,050	4.42	40,850
AFSOC	7,800	0.52	7,800	0.52	0
AFSPC	127,360	8.52	139,750	9.35	12,390
AMC	182,300	12.19	190,200	12.73	7,900
ANG	159,600	10.67	191,200	12.80	31,600
PACAF	200,100	13.38	76,600	5.13	-123,500
USAFA	24,300	1.62	23,000	1.54	-1,300
USAFE	89,950	6.02	90,150	6.03	200

In summary, a major command's program share under the existing model is directly related to its percent share of the plant replacement value, number of projects submitted, and the average individual project cost. The proposed model, on the other hand, selects projects that more effectively target C-3 and C-4 requirements and older facilities. The effectiveness of the proposed model significantly depends on the percentage of projects submitted that target C-3 and C-4 requirements.

Chapter 5. Conclusions and Recommendations

5.0 Introduction

This chapter provides a brief review of this research effort with particular emphasis on the objectives discussed in Chapter 1 and the resulting conclusions. Additionally, a review of the strengths and limitations associated with using system dynamics and value focus thinking methodologies together is presented. Finally, the chapter provides recommendations for future research efforts.

5.1 Research Overview

This research effort involved the combined use of two very differing methodologies, system dynamics and value focused thinking (VFT), to develop a proposed facility investment scoring model (i.e., military construction (MILCON) prioritization model). The existing model lacks the ability to target projects necessary to achieve the Air Force's goal of eliminating all C-3 and C-4 facility deficiencies by the year 2010. The research initially used system dynamics to help gain insight into the dynamics of the MILCON scoring system.

The next phase of the research involved developing a proposed scoring model using the VFT methodology. The values of Air Force decision makers were solicited from written doctrine, policies, and guidance. The concepts synthesized from these documents were structured into a value hierarchy using an affinity diagram approach; the resulting hierarchy was reviewed by subject matter experts. The hierarchy was finalized as a scoring model by introducing single dimension value functions to determine the

value attributed to a set of 18 measures. Since the measures were not equally important to the decision, the hierarchy was weighted to obtain global weights for the measures. The proposed scoring model represented a good tool for determining the projects that best achieved the MILCON program objectives.

The next step involved evaluating the proposed MILCON scoring model using system dynamics to determine if its behavior over time would support the goal of eliminating all C-3 and C-4 requirements. The basic structure used to evaluate the existing MILCON scoring model was modified slightly to represent the effect of the new model. The proposed model was tested to determine the effect of two policies: ”No Corporate Adjustments” and “Only C-3 and C-4 Projects Allowed.” Once satisfied that the model could achieve the objective, four funding scenarios were evaluated using the existing and proposed scoring models.

The four funding scenarios represented MILCON program sizes of $500 million, $800 million, $1.2 billion, and $1.5 billion. The models were compared for each funding scenario to determine the models' respective effectiveness at targeting C-3 and C-4 requirements, effectiveness at targeting older facilities, and share of program by major command.

5.2 Conclusions

The conclusions of this research address the long-term and short-term implications of both MILCON scoring models. The system dynamics model underscored the detrimental effects that allocating scarce resources based on the plant replacement value of a major command (MAJCOM) can have on the long-term success of the

MILCON program. Furthermore, the effect of model confidence and corporate adjustments are powerful influences and degrade either model's ability to reach the Air Force goal of eliminating all C-3 and C-4 facility deficiencies by 2010.

Employing a "No Corporate Adjustment" policy will benefit the long-term success of either MILCON scoring model. The system dynamics simulation indicated that the existing MILCON model would respond favorably to the implementation of a "No Corporate Adjustment" policy, which would place special interest items in a separately managed list that did not affect the total obligation authority of the scored projects. This would accelerate the reduction of C-3 and C-4 requirements. The proposed MILCON scoring model would also benefit from this policy.

The proposed MILCON scoring model outperformed the existing scoring model during direct comparisons. The results indicate that the proposed model targets C-3 and C-4 requirements at a higher rate than the existing model. The average effectiveness of the proposed model is 92.02 percent, which is 20 percentage points more than the exisiting model average of 71.68 percent. Additionally, the proposed model targeted older facilities more effectively than the existing model. This implies that the proposed model would be more effective at recapitalizing facilities, another goal of the Air Force MILCON program. Finally, although the existing MILCON model's allocation of available funds more closely represented the MAJCOM's share of plant replacement value, the proposed model provided a reasonable level of funding for all MAJCOMs. Overall, the proposed MILCON model showed notable promise for eliminating C-3 and C-4 requirements while selecting projects that achieve the Air Force's goals and objectives.

5.3 Strengths, Limitations, and Suggested Improvements

The combined use of the system dynamics and value focused thinking (VFT) methodologies provides a decision maker the necessary long and short-term perspective on a decision. System dynamics could not have been used without VFT since it does not provide the necessary means for ranking projects. On the other hand, system dynamics incorporates the time perspective that is critical in determining if a decision tool will meet the needs of an organization's long-term goals.

However, the use of the two methodologies has its limitations. It is very difficult to model all aspects of the VFT decision tool into the system dynamics model. The result is the possible omission of a critical entity in the system dynamics model, thereby contributing to an incomplete understanding of the system's behavior. This could lead to false conclusions and ultimately a poor decision. The systems dynamics models developed in this research served the purpose of demonstrating that it is possible to use them effectively with other methodologies. They were, however, not as robust as necessary to implement critical policies. Furthermore, other factors influencing the MILCON scoring process must be modeled to increase the decision maker's confidence in the system representation.

The VFT hierarchy provides an initial framework for a proposed MILCON scoring model. The model, however, does not fully represent the values of the decision maker since the decision maker was not involved in making the model. Furthermore, the single dimension value functions and weights would also have to be adjusted according to the decision maker's preferences. Incorporating policies developed from the system dynamics modeling process into the VFT hierarchy is not always possible. This is

normally not a major issue since the policies address implementation of the scoring model and not the mechanistic scoring. In summary, the use of these two methodologies provides the necessary long and short-term perspectives on a decision.

5.4 Recommendations for Future Research

Future research in this area should focus on methods for including VFT measures in the system dynamics modeling process for long-term evaluation. Another possible research effort could include the implementation of a more robust approach to the VFT process by enlisting a group of subject matter experts to provide their views on the objectives and measures related to an improved method of selecting MILCON projects.

Appendix A – System Dynamics Equations for Current Model System

Corporate_Adjustments(t) = Corporate_Adjustments(t - dt) + (Tradeoff) * dt
INIT Corporate_Adjustments = 0
Tradeoff (Not in a sector)
C3_C4_Target_Factor = 1.00
Mission_Type_and_Impact[OpsTrng] = 0.3621
Mission_Type_and_Impact[MaintProd] = 0.2241
Mission_Type_and_Impact[Admin] = 0.0862
Mission_Type_and_Impact[RDTE] = 0.0371
Mission_Type_and_Impact[Mobility] = 0.0093
Mission_Type_and_Impact[Utilities] = 0.0663
Mission_Type_and_Impact[Cmty] = 0.1671
Mission_Type_and_Impact[Supply] = 0.0451
Model_Effectiveness[MAJCOM,Facility_Class] =
Plant_Replacement_Value[MAJCOM]*Mission_Type_and_Impact[Facility_Class]*Red
uce_Model_Effectiveness
Plant_Replacement_Value[ADW] = 0.004
Plant_Replacement_Value[AFSOC] = 0.005
Plant_Replacement_Value[USAFA] = 0.015
Plant_Replacement_Value[AETC] = 0.09
Plant_Replacement_Value[ACC] = 0.148
Plant_Replacement_Value[USAFE] = 0.069
Plant_Replacement_Value[PACAF] = 0.117
Plant_Replacement_Value[AFMC] = 0.222
Plant_Replacement_Value[AFSPC] = 0.111
Plant_Replacement_Value[AMC] = 0.112
Plant_Replacement_Value[ANG] = 0.069
Plant_Replacement_Value[AFRC] = 0.038
Reduce_Model_Effectiveness = C3_C4_Target_Factor*(1-
(Corporate_Adjustments/100))*MILCON_Funding
C1_C2_Plant_Value[ADW,OpsTrng](t) = C1_C2_Plant_Value[ADW,OpsTrng](t - dt) +
(- Deterioration[ADW,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ADW,OpsTrng] = 24.6
C1_C2_Plant_Value[ADW,MaintProd](t) = C1_C2_Plant_Value[ADW,MaintProd](t -
dt) + (- Deterioration[ADW,MaintProd]) * dt
INIT C1_C2_Plant_Value[ADW,MaintProd] = 8.7
C1_C2_Plant_Value[ADW,Admin](t) = C1_C2_Plant_Value[ADW,Admin](t - dt) + (-
Deterioration[ADW,Admin]) * dt
INIT C1_C2_Plant_Value[ADW,Admin] = 47.5
C1_C2_Plant_Value[ADW,RDTE](t) = C1_C2_Plant_Value[ADW,RDTE](t - dt) + (-
Deterioration[ADW,RDTE]) * dt
INIT C1_C2_Plant_Value[ADW,RDTE] = 0

C1_C2_Plant_Value[ADW,Mobility](t) = C1_C2_Plant_Value[ADW,Mobility](t - dt) + (- Deterioration[ADW,Mobility]) * dt
INIT C1_C2_Plant_Value[ADW,Mobility] = 0
C1_C2_Plant_Value[ADW,Utilities](t) = C1_C2_Plant_Value[ADW,Utilities](t - dt) + (- Deterioration[ADW,Utilities]) * dt
INIT C1_C2_Plant_Value[ADW,Utilities] = 358.4
C1_C2_Plant_Value[ADW,Cmty](t) = C1_C2_Plant_Value[ADW,Cmty](t - dt) + (- Deterioration[ADW,Cmty]) * dt
INIT C1_C2_Plant_Value[ADW,Cmty] = 43.5
C1_C2_Plant_Value[ADW,Supply](t) = C1_C2_Plant_Value[ADW,Supply](t - dt) + (- Deterioration[ADW,Supply]) * dt
INIT C1_C2_Plant_Value[ADW,Supply] = 3.6
C1_C2_Plant_Value[AFSOC,OpsTrng](t) = C1_C2_Plant_Value[AFSOC,OpsTrng](t - dt) + (- Deterioration[AFSOC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFSOC,OpsTrng] = 140.3
C1_C2_Plant_Value[AFSOC,MaintProd](t) = C1_C2_Plant_Value[AFSOC,MaintProd](t - dt) + (- Deterioration[AFSOC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFSOC,MaintProd] = 93.7
C1_C2_Plant_Value[AFSOC,Admin](t) = C1_C2_Plant_Value[AFSOC,Admin](t - dt) + (- Deterioration[AFSOC,Admin]) * dt
INIT C1_C2_Plant_Value[AFSOC,Admin] = 29.4
C1_C2_Plant_Value[AFSOC,RDTE](t) = C1_C2_Plant_Value[AFSOC,RDTE](t - dt) + (- Deterioration[AFSOC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFSOC,RDTE] = 1.2
C1_C2_Plant_Value[AFSOC,Mobility](t) = C1_C2_Plant_Value[AFSOC,Mobility](t - dt) + (- Deterioration[AFSOC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFSOC,Mobility] = 2.9
C1_C2_Plant_Value[AFSOC,Utilities](t) = C1_C2_Plant_Value[AFSOC,Utilities](t - dt) + (- Deterioration[AFSOC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFSOC,Utilities] = 216.5
C1_C2_Plant_Value[AFSOC,Cmty](t) = C1_C2_Plant_Value[AFSOC,Cmty](t - dt) + (- Deterioration[AFSOC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFSOC,Cmty] = 36
C1_C2_Plant_Value[AFSOC,Supply](t) = C1_C2_Plant_Value[AFSOC,Supply](t - dt) + (- Deterioration[AFSOC,Supply]) * dt
INIT C1_C2_Plant_Value[AFSOC,Supply] = 17.1
C1_C2_Plant_Value[USAFA,OpsTrng](t) = C1_C2_Plant_Value[USAFA,OpsTrng](t - dt) + (- Deterioration[USAFA,OpsTrng]) * dt
INIT C1_C2_Plant_Value[USAFA,OpsTrng] = 507.7
C1_C2_Plant_Value[USAFA,MaintProd](t) = C1_C2_Plant_Value[USAFA,MaintProd](t - dt) + (- Deterioration[USAFA,MaintProd]) * dt
INIT C1_C2_Plant_Value[USAFA,MaintProd] = 38.1

C1_C2_Plant_Value[USAFA,Admin](t) = C1_C2_Plant_Value[USAFA,Admin](t - dt) + (- Deterioration[USAFA,Admin]) * dt
INIT C1_C2_Plant_Value[USAFA,Admin] = 83.9
C1_C2_Plant_Value[USAFA,RDTE](t) = C1_C2_Plant_Value[USAFA,RDTE](t - dt) + (- Deterioration[USAFA,RDTE]) * dt
INIT C1_C2_Plant_Value[USAFA,RDTE] = 3
C1_C2_Plant_Value[USAFA,Mobility](t) = C1_C2_Plant_Value[USAFA,Mobility](t - dt) + (- Deterioration[USAFA,Mobility]) * dt
INIT C1_C2_Plant_Value[USAFA,Mobility] = 0
C1_C2_Plant_Value[USAFA,Utilities](t) = C1_C2_Plant_Value[USAFA,Utilities](t - dt) + (- Deterioration[USAFA,Utilities]) * dt
INIT C1_C2_Plant_Value[USAFA,Utilities] = 640.4
C1_C2_Plant_Value[USAFA,Cmty](t) = C1_C2_Plant_Value[USAFA,Cmty](t - dt) + (- Deterioration[USAFA,Cmty]) * dt
INIT C1_C2_Plant_Value[USAFA,Cmty] = 401.1
C1_C2_Plant_Value[USAFA,Supply](t) = C1_C2_Plant_Value[USAFA,Supply](t - dt) + (- Deterioration[USAFA,Supply]) * dt
INIT C1_C2_Plant_Value[USAFA,Supply] = 13.7
C1_C2_Plant_Value[AETC,OpsTrng](t) = C1_C2_Plant_Value[AETC,OpsTrng](t - dt) + (- Deterioration[AETC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AETC,OpsTrng] = 3274
C1_C2_Plant_Value[AETC,MaintProd](t) = C1_C2_Plant_Value[AETC,MaintProd](t - dt) + (- Deterioration[AETC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AETC,MaintProd] = 764.5
C1_C2_Plant_Value[AETC,Admin](t) = C1_C2_Plant_Value[AETC,Admin](t - dt) + (- Deterioration[AETC,Admin]) * dt
INIT C1_C2_Plant_Value[AETC,Admin] = 694.9
C1_C2_Plant_Value[AETC,RDTE](t) = C1_C2_Plant_Value[AETC,RDTE](t - dt) + (- Deterioration[AETC,RDTE]) * dt
INIT C1_C2_Plant_Value[AETC,RDTE] = 16.4
C1_C2_Plant_Value[AETC,Mobility](t) = C1_C2_Plant_Value[AETC,Mobility](t - dt) + (- Deterioration[AETC,Mobility]) * dt
INIT C1_C2_Plant_Value[AETC,Mobility] = 21.7
C1_C2_Plant_Value[AETC,Utilities](t) = C1_C2_Plant_Value[AETC,Utilities](t - dt) + (- Deterioration[AETC,Utilities]) * dt
INIT C1_C2_Plant_Value[AETC,Utilities] = 4227.9
C1_C2_Plant_Value[AETC,Cmty](t) = C1_C2_Plant_Value[AETC,Cmty](t - dt) + (- Deterioration[AETC,Cmty]) * dt
INIT C1_C2_Plant_Value[AETC,Cmty] = 884.7
C1_C2_Plant_Value[AETC,Supply](t) = C1_C2_Plant_Value[AETC,Supply](t - dt) + (- Deterioration[AETC,Supply]) * dt
INIT C1_C2_Plant_Value[AETC,Supply] = 233.6
C1_C2_Plant_Value[ACC,OpsTrng](t) = C1_C2_Plant_Value[ACC,OpsTrng](t - dt) + (- Deterioration[ACC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ACC,OpsTrng] = 4801.7

C1_C2_Plant_Value[ACC,MaintProd](t) = C1_C2_Plant_Value[ACC,MaintProd](t - dt) + (- Deterioration[ACC,MaintProd]) * dt
INIT C1_C2_Plant_Value[ACC,MaintProd] = 2055.6
C1_C2_Plant_Value[ACC,Admin](t) = C1_C2_Plant_Value[ACC,Admin](t - dt) + (- Deterioration[ACC,Admin]) * dt
INIT C1_C2_Plant_Value[ACC,Admin] = 1104.9
C1_C2_Plant_Value[ACC,RDTE](t) = C1_C2_Plant_Value[ACC,RDTE](t - dt) + (- Deterioration[ACC,RDTE]) * dt
INIT C1_C2_Plant_Value[ACC,RDTE] = 25.3
C1_C2_Plant_Value[ACC,Mobility](t) = C1_C2_Plant_Value[ACC,Mobility](t - dt) + (- Deterioration[ACC,Mobility]) * dt
INIT C1_C2_Plant_Value[ACC,Mobility] = 21.4
C1_C2_Plant_Value[ACC,Utilities](t) = C1_C2_Plant_Value[ACC,Utilities](t - dt) + (- Deterioration[ACC,Utilities]) * dt
INIT C1_C2_Plant_Value[ACC,Utilities] = 6876.9
C1_C2_Plant_Value[ACC,Cmty](t) = C1_C2_Plant_Value[ACC,Cmty](t - dt) + (- Deterioration[ACC,Cmty]) * dt
INIT C1_C2_Plant_Value[ACC,Cmty] = 1034.4
C1_C2_Plant_Value[ACC,Supply](t) = C1_C2_Plant_Value[ACC,Supply](t - dt) + (- Deterioration[ACC,Supply]) * dt
INIT C1_C2_Plant_Value[ACC,Supply] = 744.9
C1_C2_Plant_Value[USAFE,OpsTrng](t) = C1_C2_Plant_Value[USAFE,OpsTrng](t - dt) + (- Deterioration[USAFE,OpsTrng]) * dt
INIT C1_C2_Plant_Value[USAFE,OpsTrng] = 2580
C1_C2_Plant_Value[USAFE,MaintProd](t) = C1_C2_Plant_Value[USAFE,MaintProd](t - dt) + (- Deterioration[USAFE,MaintProd]) * dt
INIT C1_C2_Plant_Value[USAFE,MaintProd] = 643.1
C1_C2_Plant_Value[USAFE,Admin](t) = C1_C2_Plant_Value[USAFE,Admin](t - dt) + (- Deterioration[USAFE,Admin]) * dt
INIT C1_C2_Plant_Value[USAFE,Admin] = 574.2
C1_C2_Plant_Value[USAFE,RDTE](t) = C1_C2_Plant_Value[USAFE,RDTE](t - dt) + (- Deterioration[USAFE,RDTE]) * dt
INIT C1_C2_Plant_Value[USAFE,RDTE] = 0
C1_C2_Plant_Value[USAFE,Mobility](t) = C1_C2_Plant_Value[USAFE,Mobility](t - dt) + (- Deterioration[USAFE,Mobility]) * dt
INIT C1_C2_Plant_Value[USAFE,Mobility] = 14.9
C1_C2_Plant_Value[USAFE,Utilities](t) = C1_C2_Plant_Value[USAFE,Utilities](t - dt) + (- Deterioration[USAFE,Utilities]) * dt
INIT C1_C2_Plant_Value[USAFE,Utilities] = 1931.9
C1_C2_Plant_Value[USAFE,Cmty](t) = C1_C2_Plant_Value[USAFE,Cmty](t - dt) + (- Deterioration[USAFE,Cmty]) * dt
INIT C1_C2_Plant_Value[USAFE,Cmty] = 1484.4
C1_C2_Plant_Value[USAFE,Supply](t) = C1_C2_Plant_Value[USAFE,Supply](t - dt) + (- Deterioration[USAFE,Supply]) * dt
INIT C1_C2_Plant_Value[USAFE,Supply] = 488.8

C1_C2_Plant_Value[PACAF,OpsTrng](t) = C1_C2_Plant_Value[PACAF,OpsTrng](t - dt) + (- Deterioration[PACAF,OpsTrng]) * dt
INIT C1_C2_Plant_Value[PACAF,OpsTrng] = 3152.5
C1_C2_Plant_Value[PACAF,MaintProd](t) = C1_C2_Plant_Value[PACAF,MaintProd](t - dt) + (- Deterioration[PACAF,MaintProd]) * dt
INIT C1_C2_Plant_Value[PACAF,MaintProd] = 1050.5
C1_C2_Plant_Value[PACAF,Admin](t) = C1_C2_Plant_Value[PACAF,Admin](t - dt) + (- Deterioration[PACAF,Admin]) * dt
INIT C1_C2_Plant_Value[PACAF,Admin] = 633.7
C1_C2_Plant_Value[PACAF,RDTE](t) = C1_C2_Plant_Value[PACAF,RDTE](t - dt) + (- Deterioration[PACAF,RDTE]) * dt
INIT C1_C2_Plant_Value[PACAF,RDTE] = 9.8
C1_C2_Plant_Value[PACAF,Mobility](t) = C1_C2_Plant_Value[PACAF,Mobility](t - dt) + (- Deterioration[PACAF,Mobility]) * dt
INIT C1_C2_Plant_Value[PACAF,Mobility] = 58.4
C1_C2_Plant_Value[PACAF,Utilities](t) = C1_C2_Plant_Value[PACAF,Utilities](t - dt) + (- Deterioration[PACAF,Utilities]) * dt
INIT C1_C2_Plant_Value[PACAF,Utilities] = 5513.6
C1_C2_Plant_Value[PACAF,Cmty](t) = C1_C2_Plant_Value[PACAF,Cmty](t - dt) + (- Deterioration[PACAF,Cmty]) * dt
INIT C1_C2_Plant_Value[PACAF,Cmty] = 1800.4
C1_C2_Plant_Value[PACAF,Supply](t) = C1_C2_Plant_Value[PACAF,Supply](t - dt) + (- Deterioration[PACAF,Supply]) * dt
INIT C1_C2_Plant_Value[PACAF,Supply] = 877.3
C1_C2_Plant_Value[AFMC,OpsTrng](t) = C1_C2_Plant_Value[AFMC,OpsTrng](t - dt) + (- Deterioration[AFMC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFMC,OpsTrng] = 2606.4
C1_C2_Plant_Value[AFMC,MaintProd](t) = C1_C2_Plant_Value[AFMC,MaintProd](t - dt) + (- Deterioration[AFMC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFMC,MaintProd] = 2093.3
C1_C2_Plant_Value[AFMC,Admin](t) = C1_C2_Plant_Value[AFMC,Admin](t - dt) + (- Deterioration[AFMC,Admin]) * dt
INIT C1_C2_Plant_Value[AFMC,Admin] = 1518.9
C1_C2_Plant_Value[AFMC,RDTE](t) = C1_C2_Plant_Value[AFMC,RDTE](t - dt) + (- Deterioration[AFMC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFMC,RDTE] = 8458.4
C1_C2_Plant_Value[AFMC,Mobility](t) = C1_C2_Plant_Value[AFMC,Mobility](t - dt) + (- Deterioration[AFMC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFMC,Mobility] = 71.2
C1_C2_Plant_Value[AFMC,Utilities](t) = C1_C2_Plant_Value[AFMC,Utilities](t - dt) + (- Deterioration[AFMC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFMC,Utilities] = 8936.8
C1_C2_Plant_Value[AFMC,Cmty](t) = C1_C2_Plant_Value[AFMC,Cmty](t - dt) + (- Deterioration[AFMC,Cmty]) * dt

INIT C1_C2_Plant_Value[AFMC,Cmty] = 624.2
C1_C2_Plant_Value[AFMC,Supply](t) = C1_C2_Plant_Value[AFMC,Supply](t - dt) + (- Deterioration[AFMC,Supply]) * dt
INIT C1_C2_Plant_Value[AFMC,Supply] = 632.9
C1_C2_Plant_Value[AFSPC,OpsTrng](t) = C1_C2_Plant_Value[AFSPC,OpsTrng](t - dt) + (- Deterioration[AFSPC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFSPC,OpsTrng] = 2952.2
C1_C2_Plant_Value[AFSPC,MaintProd](t) = C1_C2_Plant_Value[AFSPC,MaintProd](t - dt) + (- Deterioration[AFSPC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFSPC,MaintProd] = 579.7
C1_C2_Plant_Value[AFSPC,Admin](t) = C1_C2_Plant_Value[AFSPC,Admin](t - dt) + (- Deterioration[AFSPC,Admin]) * dt
INIT C1_C2_Plant_Value[AFSPC,Admin] = 583.2
C1_C2_Plant_Value[AFSPC,RDTE](t) = C1_C2_Plant_Value[AFSPC,RDTE](t - dt) + (- Deterioration[AFSPC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFSPC,RDTE] = 2366.8
C1_C2_Plant_Value[AFSPC,Mobility](t) = C1_C2_Plant_Value[AFSPC,Mobility](t - dt) + (- Deterioration[AFSPC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFSPC,Mobility] = 20.7
C1_C2_Plant_Value[AFSPC,Utilities](t) = C1_C2_Plant_Value[AFSPC,Utilities](t - dt) + (- Deterioration[AFSPC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFSPC,Utilities] = 4940.0
C1_C2_Plant_Value[AFSPC,Cmty](t) = C1_C2_Plant_Value[AFSPC,Cmty](t - dt) + (- Deterioration[AFSPC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFSPC,Cmty] = 613.5
C1_C2_Plant_Value[AFSPC,Supply](t) = C1_C2_Plant_Value[AFSPC,Supply](t - dt) + (- Deterioration[AFSPC,Supply]) * dt
INIT C1_C2_Plant_Value[AFSPC,Supply] = 378
C1_C2_Plant_Value[AMC,OpsTrng](t) = C1_C2_Plant_Value[AMC,OpsTrng](t - dt) + (- Deterioration[AMC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AMC,OpsTrng] = 4061.9
C1_C2_Plant_Value[AMC,MaintProd](t) = C1_C2_Plant_Value[AMC,MaintProd](t - dt) + (- Deterioration[AMC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AMC,MaintProd] = 1725
C1_C2_Plant_Value[AMC,Admin](t) = C1_C2_Plant_Value[AMC,Admin](t - dt) + (- Deterioration[AMC,Admin]) * dt
INIT C1_C2_Plant_Value[AMC,Admin] = 913.8
C1_C2_Plant_Value[AMC,RDTE](t) = C1_C2_Plant_Value[AMC,RDTE](t - dt) + (- Deterioration[AMC,RDTE]) * dt
INIT C1_C2_Plant_Value[AMC,RDTE] = 0
C1_C2_Plant_Value[AMC,Mobility](t) = C1_C2_Plant_Value[AMC,Mobility](t - dt) + (- Deterioration[AMC,Mobility]) * dt
INIT C1_C2_Plant_Value[AMC,Mobility] = 342.2
C1_C2_Plant_Value[AMC,Utilities](t) = C1_C2_Plant_Value[AMC,Utilities](t - dt) + (- Deterioration[AMC,Utilities]) * dt

INIT C1_C2_Plant_Value[AMC,Utilities] = 4477.5
C1_C2_Plant_Value[AMC,Cmty](t) = C1_C2_Plant_Value[AMC,Cmty](t - dt) + (-Deterioration[AMC,Cmty]) * dt
INIT C1_C2_Plant_Value[AMC,Cmty] = 681.2
C1_C2_Plant_Value[AMC,Supply](t) = C1_C2_Plant_Value[AMC,Supply](t - dt) + (-Deterioration[AMC,Supply]) * dt
INIT C1_C2_Plant_Value[AMC,Supply] = 353.2
C1_C2_Plant_Value[ANG,OpsTrng](t) = C1_C2_Plant_Value[ANG,OpsTrng](t - dt) + (- Deterioration[ANG,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ANG,OpsTrng] = 2848.1
C1_C2_Plant_Value[ANG,MaintProd](t) = C1_C2_Plant_Value[ANG,MaintProd](t - dt) + (- Deterioration[ANG,MaintProd]) * dt
INIT C1_C2_Plant_Value[ANG,MaintProd] = 2143.1
C1_C2_Plant_Value[ANG,Admin](t) = C1_C2_Plant_Value[ANG,Admin](t - dt) + (-Deterioration[ANG,Admin]) * dt
INIT C1_C2_Plant_Value[ANG,Admin] = 313.5
C1_C2_Plant_Value[ANG,RDTE](t) = C1_C2_Plant_Value[ANG,RDTE](t - dt) + (-Deterioration[ANG,RDTE]) * dt
INIT C1_C2_Plant_Value[ANG,RDTE] = 0
C1_C2_Plant_Value[ANG,Mobility](t) = C1_C2_Plant_Value[ANG,Mobility](t - dt) + (- Deterioration[ANG,Mobility]) * dt
INIT C1_C2_Plant_Value[ANG,Mobility] = 2.6
C1_C2_Plant_Value[ANG,Utilities](t) = C1_C2_Plant_Value[ANG,Utilities](t - dt) + (-Deterioration[ANG,Utilities]) * dt
INIT C1_C2_Plant_Value[ANG,Utilities] = 1760.7
C1_C2_Plant_Value[ANG,Cmty](t) = C1_C2_Plant_Value[ANG,Cmty](t - dt) + (-Deterioration[ANG,Cmty]) * dt
INIT C1_C2_Plant_Value[ANG,Cmty] = 344.4
C1_C2_Plant_Value[ANG,Supply](t) = C1_C2_Plant_Value[ANG,Supply](t - dt) + (-Deterioration[ANG,Supply]) * dt
INIT C1_C2_Plant_Value[ANG,Supply] = 372.8
C1_C2_Plant_Value[AFRC,OpsTrng](t) = C1_C2_Plant_Value[AFRC,OpsTrng](t - dt) + (- Deterioration[AFRC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFRC,OpsTrng] = 1775.2
C1_C2_Plant_Value[AFRC,MaintProd](t) = C1_C2_Plant_Value[AFRC,MaintProd](t - dt) + (- Deterioration[AFRC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFRC,MaintProd] = 833.4
C1_C2_Plant_Value[AFRC,Admin](t) = C1_C2_Plant_Value[AFRC,Admin](t - dt) + (-Deterioration[AFRC,Admin]) * dt
INIT C1_C2_Plant_Value[AFRC,Admin] = 187.7
C1_C2_Plant_Value[AFRC,RDTE](t) = C1_C2_Plant_Value[AFRC,RDTE](t - dt) + (-Deterioration[AFRC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFRC,RDTE] = 35.1
C1_C2_Plant_Value[AFRC,Mobility](t) = C1_C2_Plant_Value[AFRC,Mobility](t - dt) + (- Deterioration[AFRC,Mobility]) * dt

INIT C1_C2_Plant_Value[AFRC,Mobility] = 6.1
C1_C2_Plant_Value[AFRC,Utilities](t) = C1_C2_Plant_Value[AFRC,Utilities](t - dt) + (- Deterioration[AFRC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFRC,Utilities] = 961.8
C1_C2_Plant_Value[AFRC,Cmty](t) = C1_C2_Plant_Value[AFRC,Cmty](t - dt) + (- Deterioration[AFRC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFRC,Cmty] = 278.4
C1_C2_Plant_Value[AFRC,Supply](t) = C1_C2_Plant_Value[AFRC,Supply](t - dt) + (- Deterioration[AFRC,Supply]) * dt
INIT C1_C2_Plant_Value[AFRC,Supply] = 161.3
Deterioration[MAJCOM,Facility_Class] = C1_C2_Plant_Value[MAJCOM,Facility_Class]/Recap_Years*Percent_MAJCOM_PRV[MAJCOM]*Deterioration_Enabled
C3_C4_Requirements[ADW,OpsTrng](t) = C3_C4_Requirements[ADW,OpsTrng](t - dt) + (Deterioration[ADW,OpsTrng] - Revitalization[ADW,OpsTrng]) * dt
INIT C3_C4_Requirements[ADW,OpsTrng] = 0
C3_C4_Requirements[ADW,MaintProd](t) = C3_C4_Requirements[ADW,MaintProd](t - dt) + (Deterioration[ADW,MaintProd] - Revitalization[ADW,MaintProd]) * dt
INIT C3_C4_Requirements[ADW,MaintProd] = 3.8
C3_C4_Requirements[ADW,Admin](t) = C3_C4_Requirements[ADW,Admin](t - dt) + (Deterioration[ADW,Admin] - Revitalization[ADW,Admin]) * dt
INIT C3_C4_Requirements[ADW,Admin] = 0
C3_C4_Requirements[ADW,RDTE](t) = C3_C4_Requirements[ADW,RDTE](t - dt) + (Deterioration[ADW,RDTE] - Revitalization[ADW,RDTE]) * dt
INIT C3_C4_Requirements[ADW,RDTE] = 0
C3_C4_Requirements[ADW,Mobility](t) = C3_C4_Requirements[ADW,Mobility](t - dt) + (Deterioration[ADW,Mobility] - Revitalization[ADW,Mobility]) * dt
INIT C3_C4_Requirements[ADW,Mobility] = 0
C3_C4_Requirements[ADW,Utilities](t) = C3_C4_Requirements[ADW,Utilities](t - dt) + (Deterioration[ADW,Utilities] - Revitalization[ADW,Utilities]) * dt
INIT C3_C4_Requirements[ADW,Utilities] = 0
C3_C4_Requirements[ADW,Cmty](t) = C3_C4_Requirements[ADW,Cmty](t - dt) + (Deterioration[ADW,Cmty] - Revitalization[ADW,Cmty]) * dt
INIT C3_C4_Requirements[ADW,Cmty] = 5
C3_C4_Requirements[ADW,Supply](t) = C3_C4_Requirements[ADW,Supply](t - dt) + (Deterioration[ADW,Supply] - Revitalization[ADW,Supply]) * dt
INIT C3_C4_Requirements[ADW,Supply] = 0
C3_C4_Requirements[AFSOC,OpsTrng](t) = C3_C4_Requirements[AFSOC,OpsTrng](t - dt) + (Deterioration[AFSOC,OpsTrng] - Revitalization[AFSOC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFSOC,OpsTrng] = 27.9
C3_C4_Requirements[AFSOC,MaintProd](t) = C3_C4_Requirements[AFSOC,MaintProd](t - dt) + (Deterioration[AFSOC,MaintProd] - Revitalization[AFSOC,MaintProd]) * dt
INIT C3_C4_Requirements[AFSOC,MaintProd] = 0

C3_C4_Requirements[AFSOC,Admin](t) = C3_C4_Requirements[AFSOC,Admin](t - dt) + (Deterioration[AFSOC,Admin] - Revitalization[AFSOC,Admin]) * dt
INIT C3_C4_Requirements[AFSOC,Admin] = 24.3
C3_C4_Requirements[AFSOC,RDTE](t) = C3_C4_Requirements[AFSOC,RDTE](t - dt) + (Deterioration[AFSOC,RDTE] - Revitalization[AFSOC,RDTE]) * dt
INIT C3_C4_Requirements[AFSOC,RDTE] = 0
C3_C4_Requirements[AFSOC,Mobility](t) = C3_C4_Requirements[AFSOC,Mobility](t - dt) + (Deterioration[AFSOC,Mobility] - Revitalization[AFSOC,Mobility]) * dt
INIT C3_C4_Requirements[AFSOC,Mobility] = 0
C3_C4_Requirements[AFSOC,Utilities](t) = C3_C4_Requirements[AFSOC,Utilities](t - dt) + (Deterioration[AFSOC,Utilities] - Revitalization[AFSOC,Utilities]) * dt
INIT C3_C4_Requirements[AFSOC,Utilities] = 0
C3_C4_Requirements[AFSOC,Cmty](t) = C3_C4_Requirements[AFSOC,Cmty](t - dt) + (Deterioration[AFSOC,Cmty] - Revitalization[AFSOC,Cmty]) * dt
INIT C3_C4_Requirements[AFSOC,Cmty] = 8.2
C3_C4_Requirements[AFSOC,Supply](t) = C3_C4_Requirements[AFSOC,Supply](t - dt) + (Deterioration[AFSOC,Supply] - Revitalization[AFSOC,Supply]) * dt
INIT C3_C4_Requirements[AFSOC,Supply] = 3.1
C3_C4_Requirements[USAFA,OpsTrng](t) = C3_C4_Requirements[USAFA,OpsTrng](t - dt) + (Deterioration[USAFA,OpsTrng] - Revitalization[USAFA,OpsTrng]) * dt
INIT C3_C4_Requirements[USAFA,OpsTrng] = 17.8
C3_C4_Requirements[USAFA,MaintProd](t) = C3_C4_Requirements[USAFA,MaintProd](t - dt) + (Deterioration[USAFA,MaintProd] - Revitalization[USAFA,MaintProd]) * dt
INIT C3_C4_Requirements[USAFA,MaintProd] = 0
C3_C4_Requirements[USAFA,Admin](t) = C3_C4_Requirements[USAFA,Admin](t - dt) + (Deterioration[USAFA,Admin] - Revitalization[USAFA,Admin]) * dt
INIT C3_C4_Requirements[USAFA,Admin] = 0
C3_C4_Requirements[USAFA,RDTE](t) = C3_C4_Requirements[USAFA,RDTE](t - dt) + (Deterioration[USAFA,RDTE] - Revitalization[USAFA,RDTE]) * dt
INIT C3_C4_Requirements[USAFA,RDTE] = 0
C3_C4_Requirements[USAFA,Mobility](t) = C3_C4_Requirements[USAFA,Mobility](t - dt) + (Deterioration[USAFA,Mobility] - Revitalization[USAFA,Mobility]) * dt
INIT C3_C4_Requirements[USAFA,Mobility] = 0
C3_C4_Requirements[USAFA,Utilities](t) = C3_C4_Requirements[USAFA,Utilities](t - dt) + (Deterioration[USAFA,Utilities] - Revitalization[USAFA,Utilities]) * dt
INIT C3_C4_Requirements[USAFA,Utilities] = 7.6
C3_C4_Requirements[USAFA,Cmty](t) = C3_C4_Requirements[USAFA,Cmty](t - dt) + (Deterioration[USAFA,Cmty] - Revitalization[USAFA,Cmty]) * dt
INIT C3_C4_Requirements[USAFA,Cmty] = 0
C3_C4_Requirements[USAFA,Supply](t) = C3_C4_Requirements[USAFA,Supply](t - dt) + (Deterioration[USAFA,Supply] - Revitalization[USAFA,Supply]) * dt
INIT C3_C4_Requirements[USAFA,Supply] = 0
C3_C4_Requirements[AETC,OpsTrng](t) = C3_C4_Requirements[AETC,OpsTrng](t - dt) + (Deterioration[AETC,OpsTrng] - Revitalization[AETC,OpsTrng]) * dt

INIT C3_C4_Requirements[AETC,OpsTrng] = 250
C3_C4_Requirements[AETC,MaintProd](t) =
C3_C4_Requirements[AETC,MaintProd](t - dt) + (Deterioration[AETC,MaintProd] - Revitalization[AETC,MaintProd]) * dt
INIT C3_C4_Requirements[AETC,MaintProd] = 154.8
C3_C4_Requirements[AETC,Admin](t) = C3_C4_Requirements[AETC,Admin](t - dt) + (Deterioration[AETC,Admin] - Revitalization[AETC,Admin]) * dt
INIT C3_C4_Requirements[AETC,Admin] = 51.9
C3_C4_Requirements[AETC,RDTE](t) = C3_C4_Requirements[AETC,RDTE](t - dt) + (Deterioration[AETC,RDTE] - Revitalization[AETC,RDTE]) * dt
INIT C3_C4_Requirements[AETC,RDTE] = 0
C3_C4_Requirements[AETC,Mobility](t) = C3_C4_Requirements[AETC,Mobility](t - dt) + (Deterioration[AETC,Mobility] - Revitalization[AETC,Mobility]) * dt
INIT C3_C4_Requirements[AETC,Mobility] = 12
C3_C4_Requirements[AETC,Utilities](t) = C3_C4_Requirements[AETC,Utilities](t - dt) + (Deterioration[AETC,Utilities] - Revitalization[AETC,Utilities]) * dt
INIT C3_C4_Requirements[AETC,Utilities] = 23.7
C3_C4_Requirements[AETC,Cmty](t) = C3_C4_Requirements[AETC,Cmty](t - dt) + (Deterioration[AETC,Cmty] - Revitalization[AETC,Cmty]) * dt
INIT C3_C4_Requirements[AETC,Cmty] = 267.8
C3_C4_Requirements[AETC,Supply](t) = C3_C4_Requirements[AETC,Supply](t - dt) + (Deterioration[AETC,Supply] - Revitalization[AETC,Supply]) * dt
INIT C3_C4_Requirements[AETC,Supply] = 26.9
C3_C4_Requirements[ACC,OpsTrng](t) = C3_C4_Requirements[ACC,OpsTrng](t - dt) + (Deterioration[ACC,OpsTrng] - Revitalization[ACC,OpsTrng]) * dt
INIT C3_C4_Requirements[ACC,OpsTrng] = 221.2
C3_C4_Requirements[ACC,MaintProd](t) = C3_C4_Requirements[ACC,MaintProd](t - dt) + (Deterioration[ACC,MaintProd] - Revitalization[ACC,MaintProd]) * dt
INIT C3_C4_Requirements[ACC,MaintProd] = 254.6
C3_C4_Requirements[ACC,Admin](t) = C3_C4_Requirements[ACC,Admin](t - dt) + (Deterioration[ACC,Admin] - Revitalization[ACC,Admin]) * dt
INIT C3_C4_Requirements[ACC,Admin] = 55.6
C3_C4_Requirements[ACC,RDTE](t) = C3_C4_Requirements[ACC,RDTE](t - dt) + (Deterioration[ACC,RDTE] - Revitalization[ACC,RDTE]) * dt
INIT C3_C4_Requirements[ACC,RDTE] = 0
C3_C4_Requirements[ACC,Mobility](t) = C3_C4_Requirements[ACC,Mobility](t - dt) + (Deterioration[ACC,Mobility] - Revitalization[ACC,Mobility]) * dt
INIT C3_C4_Requirements[ACC,Mobility] = 20.7
C3_C4_Requirements[ACC,Utilities](t) = C3_C4_Requirements[ACC,Utilities](t - dt) + (Deterioration[ACC,Utilities] - Revitalization[ACC,Utilities]) * dt
INIT C3_C4_Requirements[ACC,Utilities] = 11
C3_C4_Requirements[ACC,Cmty](t) = C3_C4_Requirements[ACC,Cmty](t - dt) + (Deterioration[ACC,Cmty] - Revitalization[ACC,Cmty]) * dt
INIT C3_C4_Requirements[ACC,Cmty] = 211.6

C3_C4_Requirements[ACC,Supply](t) = C3_C4_Requirements[ACC,Supply](t - dt) + (Deterioration[ACC,Supply] - Revitalization[ACC,Supply]) * dt
INIT C3_C4_Requirements[ACC,Supply] = 48.7
C3_C4_Requirements[USAFE,OpsTrng](t) = C3_C4_Requirements[USAFE,OpsTrng](t - dt) + (Deterioration[USAFE,OpsTrng] - Revitalization[USAFE,OpsTrng]) * dt
INIT C3_C4_Requirements[USAFE,OpsTrng] = 152.7
C3_C4_Requirements[USAFE,MaintProd](t) = C3_C4_Requirements[USAFE,MaintProd](t - dt) + (Deterioration[USAFE,MaintProd] - Revitalization[USAFE,MaintProd]) * dt
INIT C3_C4_Requirements[USAFE,MaintProd] = 136.2
C3_C4_Requirements[USAFE,Admin](t) = C3_C4_Requirements[USAFE,Admin](t - dt) + (Deterioration[USAFE,Admin] - Revitalization[USAFE,Admin]) * dt
INIT C3_C4_Requirements[USAFE,Admin] = 68.1
C3_C4_Requirements[USAFE,RDTE](t) = C3_C4_Requirements[USAFE,RDTE](t - dt) + (Deterioration[USAFE,RDTE] - Revitalization[USAFE,RDTE]) * dt
INIT C3_C4_Requirements[USAFE,RDTE] = 0
C3_C4_Requirements[USAFE,Mobility](t) = C3_C4_Requirements[USAFE,Mobility](t - dt) + (Deterioration[USAFE,Mobility] - Revitalization[USAFE,Mobility]) * dt
INIT C3_C4_Requirements[USAFE,Mobility] = 70.3
C3_C4_Requirements[USAFE,Utilities](t) = C3_C4_Requirements[USAFE,Utilities](t - dt) + (Deterioration[USAFE,Utilities] - Revitalization[USAFE,Utilities]) * dt
INIT C3_C4_Requirements[USAFE,Utilities] = 23.4
C3_C4_Requirements[USAFE,Cmty](t) = C3_C4_Requirements[USAFE,Cmty](t - dt) + (Deterioration[USAFE,Cmty] - Revitalization[USAFE,Cmty]) * dt
INIT C3_C4_Requirements[USAFE,Cmty] = 127.4
C3_C4_Requirements[USAFE,Supply](t) = C3_C4_Requirements[USAFE,Supply](t - dt) + (Deterioration[USAFE,Supply] - Revitalization[USAFE,Supply]) * dt
INIT C3_C4_Requirements[USAFE,Supply] = 58.3
C3_C4_Requirements[PACAF,OpsTrng](t) = C3_C4_Requirements[PACAF,OpsTrng](t - dt) + (Deterioration[PACAF,OpsTrng] - Revitalization[PACAF,OpsTrng]) * dt
INIT C3_C4_Requirements[PACAF,OpsTrng] = 411.2
C3_C4_Requirements[PACAF,MaintProd](t) = C3_C4_Requirements[PACAF,MaintProd](t - dt) + (Deterioration[PACAF,MaintProd] - Revitalization[PACAF,MaintProd]) * dt
INIT C3_C4_Requirements[PACAF,MaintProd] = 207.2
C3_C4_Requirements[PACAF,Admin](t) = C3_C4_Requirements[PACAF,Admin](t - dt) + (Deterioration[PACAF,Admin] - Revitalization[PACAF,Admin]) * dt
INIT C3_C4_Requirements[PACAF,Admin] = 193.7
C3_C4_Requirements[PACAF,RDTE](t) = C3_C4_Requirements[PACAF,RDTE](t - dt) + (Deterioration[PACAF,RDTE] - Revitalization[PACAF,RDTE]) * dt
INIT C3_C4_Requirements[PACAF,RDTE] = 0
C3_C4_Requirements[PACAF,Mobility](t) = C3_C4_Requirements[PACAF,Mobility](t - dt) + (Deterioration[PACAF,Mobility] - Revitalization[PACAF,Mobility]) * dt
INIT C3_C4_Requirements[PACAF,Mobility] = 54.5

C3_C4_Requirements[PACAF,Utilities](t) = C3_C4_Requirements[PACAF,Utilities](t - dt) + (Deterioration[PACAF,Utilities] - Revitalization[PACAF,Utilities]) * dt
INIT C3_C4_Requirements[PACAF,Utilities] = 244
C3_C4_Requirements[PACAF,Cmty](t) = C3_C4_Requirements[PACAF,Cmty](t - dt) + (Deterioration[PACAF,Cmty] - Revitalization[PACAF,Cmty]) * dt
INIT C3_C4_Requirements[PACAF,Cmty] = 269.9
C3_C4_Requirements[PACAF,Supply](t) = C3_C4_Requirements[PACAF,Supply](t - dt) + (Deterioration[PACAF,Supply] - Revitalization[PACAF,Supply]) * dt
INIT C3_C4_Requirements[PACAF,Supply] = 60.5
C3_C4_Requirements[AFMC,OpsTrng](t) = C3_C4_Requirements[AFMC,OpsTrng](t - dt) + (Deterioration[AFMC,OpsTrng] - Revitalization[AFMC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFMC,OpsTrng] = 139.7
C3_C4_Requirements[AFMC,MaintProd](t) = C3_C4_Requirements[AFMC,MaintProd](t - dt) + (Deterioration[AFMC,MaintProd] - Revitalization[AFMC,MaintProd]) * dt
INIT C3_C4_Requirements[AFMC,MaintProd] = 945.9
C3_C4_Requirements[AFMC,Admin](t) = C3_C4_Requirements[AFMC,Admin](t - dt) + (Deterioration[AFMC,Admin] - Revitalization[AFMC,Admin]) * dt
INIT C3_C4_Requirements[AFMC,Admin] = 55.9
C3_C4_Requirements[AFMC,RDTE](t) = C3_C4_Requirements[AFMC,RDTE](t - dt) + (Deterioration[AFMC,RDTE] - Revitalization[AFMC,RDTE]) * dt
INIT C3_C4_Requirements[AFMC,RDTE] = 328
C3_C4_Requirements[AFMC,Mobility](t) = C3_C4_Requirements[AFMC,Mobility](t - dt) + (Deterioration[AFMC,Mobility] - Revitalization[AFMC,Mobility]) * dt
INIT C3_C4_Requirements[AFMC,Mobility] = 0
C3_C4_Requirements[AFMC,Utilities](t) = C3_C4_Requirements[AFMC,Utilities](t - dt) + (Deterioration[AFMC,Utilities] - Revitalization[AFMC,Utilities]) * dt
INIT C3_C4_Requirements[AFMC,Utilities] = 0
C3_C4_Requirements[AFMC,Cmty](t) = C3_C4_Requirements[AFMC,Cmty](t - dt) + (Deterioration[AFMC,Cmty] - Revitalization[AFMC,Cmty]) * dt
INIT C3_C4_Requirements[AFMC,Cmty] = 96.5
C3_C4_Requirements[AFMC,Supply](t) = C3_C4_Requirements[AFMC,Supply](t - dt) + (Deterioration[AFMC,Supply] - Revitalization[AFMC,Supply]) * dt
INIT C3_C4_Requirements[AFMC,Supply] = 10
C3_C4_Requirements[AFSPC,OpsTrng](t) = C3_C4_Requirements[AFSPC,OpsTrng](t - dt) + (Deterioration[AFSPC,OpsTrng] - Revitalization[AFSPC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFSPC,OpsTrng] = 15.4
C3_C4_Requirements[AFSPC,MaintProd](t) = C3_C4_Requirements[AFSPC,MaintProd](t - dt) + (Deterioration[AFSPC,MaintProd] - Revitalization[AFSPC,MaintProd]) * dt
INIT C3_C4_Requirements[AFSPC,MaintProd] = 39.5
C3_C4_Requirements[AFSPC,Admin](t) = C3_C4_Requirements[AFSPC,Admin](t - dt) + (Deterioration[AFSPC,Admin] - Revitalization[AFSPC,Admin]) * dt
INIT C3_C4_Requirements[AFSPC,Admin] = 90.9

C3_C4_Requirements[AFSPC,RDTE](t) = C3_C4_Requirements[AFSPC,RDTE](t - dt) + (Deterioration[AFSPC,RDTE] - Revitalization[AFSPC,RDTE]) * dt
INIT C3_C4_Requirements[AFSPC,RDTE] = 0
C3_C4_Requirements[AFSPC,Mobility](t) = C3_C4_Requirements[AFSPC,Mobility](t - dt) + (Deterioration[AFSPC,Mobility] - Revitalization[AFSPC,Mobility]) * dt
INIT C3_C4_Requirements[AFSPC,Mobility] = 8
C3_C4_Requirements[AFSPC,Utilities](t) = C3_C4_Requirements[AFSPC,Utilities](t - dt) + (Deterioration[AFSPC,Utilities] - Revitalization[AFSPC,Utilities]) * dt
INIT C3_C4_Requirements[AFSPC,Utilities] = 91.8
C3_C4_Requirements[AFSPC,Cmty](t) = C3_C4_Requirements[AFSPC,Cmty](t - dt) + (Deterioration[AFSPC,Cmty] - Revitalization[AFSPC,Cmty]) * dt
INIT C3_C4_Requirements[AFSPC,Cmty] = 177.3
C3_C4_Requirements[AFSPC,Supply](t) = C3_C4_Requirements[AFSPC,Supply](t - dt) + (Deterioration[AFSPC,Supply] - Revitalization[AFSPC,Supply]) * dt
INIT C3_C4_Requirements[AFSPC,Supply] = 32.7
C3_C4_Requirements[AMC,OpsTrng](t) = C3_C4_Requirements[AMC,OpsTrng](t - dt) + (Deterioration[AMC,OpsTrng] - Revitalization[AMC,OpsTrng]) * dt
INIT C3_C4_Requirements[AMC,OpsTrng] = 246.7
C3_C4_Requirements[AMC,MaintProd](t) = C3_C4_Requirements[AMC,MaintProd](t - dt) + (Deterioration[AMC,MaintProd] - Revitalization[AMC,MaintProd]) * dt
INIT C3_C4_Requirements[AMC,MaintProd] = 250.9
C3_C4_Requirements[AMC,Admin](t) = C3_C4_Requirements[AMC,Admin](t - dt) + (Deterioration[AMC,Admin] - Revitalization[AMC,Admin]) * dt
INIT C3_C4_Requirements[AMC,Admin] = 232.1
C3_C4_Requirements[AMC,RDTE](t) = C3_C4_Requirements[AMC,RDTE](t - dt) + (Deterioration[AMC,RDTE] - Revitalization[AMC,RDTE]) * dt
INIT C3_C4_Requirements[AMC,RDTE] = 0
C3_C4_Requirements[AMC,Mobility](t) = C3_C4_Requirements[AMC,Mobility](t - dt) + (Deterioration[AMC,Mobility] - Revitalization[AMC,Mobility]) * dt
INIT C3_C4_Requirements[AMC,Mobility] = 77.8
C3_C4_Requirements[AMC,Utilities](t) = C3_C4_Requirements[AMC,Utilities](t - dt) + (Deterioration[AMC,Utilities] - Revitalization[AMC,Utilities]) * dt
INIT C3_C4_Requirements[AMC,Utilities] = 155.1
C3_C4_Requirements[AMC,Cmty](t) = C3_C4_Requirements[AMC,Cmty](t - dt) + (Deterioration[AMC,Cmty] - Revitalization[AMC,Cmty]) * dt
INIT C3_C4_Requirements[AMC,Cmty] = 220.5
C3_C4_Requirements[AMC,Supply](t) = C3_C4_Requirements[AMC,Supply](t - dt) + (Deterioration[AMC,Supply] - Revitalization[AMC,Supply]) * dt
INIT C3_C4_Requirements[AMC,Supply] = 76.9
C3_C4_Requirements[ANG,OpsTrng](t) = C3_C4_Requirements[ANG,OpsTrng](t - dt) + (Deterioration[ANG,OpsTrng] - Revitalization[ANG,OpsTrng]) * dt
INIT C3_C4_Requirements[ANG,OpsTrng] = 1000.2
C3_C4_Requirements[ANG,MaintProd](t) = C3_C4_Requirements[ANG,MaintProd](t - dt) + (Deterioration[ANG,MaintProd] - Revitalization[ANG,MaintProd]) * dt
INIT C3_C4_Requirements[ANG,MaintProd] = 628

C3_C4_Requirements[ANG,Admin](t) = C3_C4_Requirements[ANG,Admin](t - dt) + (Deterioration[ANG,Admin] - Revitalization[ANG,Admin]) * dt
INIT C3_C4_Requirements[ANG,Admin] = 6
C3_C4_Requirements[ANG,RDTE](t) = C3_C4_Requirements[ANG,RDTE](t - dt) + (Deterioration[ANG,RDTE] - Revitalization[ANG,RDTE]) * dt
INIT C3_C4_Requirements[ANG,RDTE] = 0
C3_C4_Requirements[ANG,Mobility](t) = C3_C4_Requirements[ANG,Mobility](t - dt) + (Deterioration[ANG,Mobility] - Revitalization[ANG,Mobility]) * dt
INIT C3_C4_Requirements[ANG,Mobility] = 0
C3_C4_Requirements[ANG,Utilities](t) = C3_C4_Requirements[ANG,Utilities](t - dt) + (Deterioration[ANG,Utilities] - Revitalization[ANG,Utilities]) * dt
INIT C3_C4_Requirements[ANG,Utilities] = 46.1
C3_C4_Requirements[ANG,Cmty](t) = C3_C4_Requirements[ANG,Cmty](t - dt) + (Deterioration[ANG,Cmty] - Revitalization[ANG,Cmty]) * dt
INIT C3_C4_Requirements[ANG,Cmty] = 252.4
C3_C4_Requirements[ANG,Supply](t) = C3_C4_Requirements[ANG,Supply](t - dt) + (Deterioration[ANG,Supply] - Revitalization[ANG,Supply]) * dt
INIT C3_C4_Requirements[ANG,Supply] = 189.1
C3_C4_Requirements[AFRC,OpsTrng](t) = C3_C4_Requirements[AFRC,OpsTrng](t - dt) + (Deterioration[AFRC,OpsTrng] - Revitalization[AFRC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFRC,OpsTrng] = 82.7
C3_C4_Requirements[AFRC,MaintProd](t) = C3_C4_Requirements[AFRC,MaintProd](t - dt) + (Deterioration[AFRC,MaintProd] - Revitalization[AFRC,MaintProd]) * dt
INIT C3_C4_Requirements[AFRC,MaintProd] = 48
C3_C4_Requirements[AFRC,Admin](t) = C3_C4_Requirements[AFRC,Admin](t - dt) + (Deterioration[AFRC,Admin] - Revitalization[AFRC,Admin]) * dt
INIT C3_C4_Requirements[AFRC,Admin] = 5.7
C3_C4_Requirements[AFRC,RDTE](t) = C3_C4_Requirements[AFRC,RDTE](t - dt) + (Deterioration[AFRC,RDTE] - Revitalization[AFRC,RDTE]) * dt
INIT C3_C4_Requirements[AFRC,RDTE] = 0
C3_C4_Requirements[AFRC,Mobility](t) = C3_C4_Requirements[AFRC,Mobility](t - dt) + (Deterioration[AFRC,Mobility] - Revitalization[AFRC,Mobility]) * dt
INIT C3_C4_Requirements[AFRC,Mobility] = 0
C3_C4_Requirements[AFRC,Utilities](t) = C3_C4_Requirements[AFRC,Utilities](t - dt) + (Deterioration[AFRC,Utilities] - Revitalization[AFRC,Utilities]) * dt
INIT C3_C4_Requirements[AFRC,Utilities] = 1.4
C3_C4_Requirements[AFRC,Cmty](t) = C3_C4_Requirements[AFRC,Cmty](t - dt) + (Deterioration[AFRC,Cmty] - Revitalization[AFRC,Cmty]) * dt
INIT C3_C4_Requirements[AFRC,Cmty] = 119.5
C3_C4_Requirements[AFRC,Supply](t) = C3_C4_Requirements[AFRC,Supply](t - dt) + (Deterioration[AFRC,Supply] - Revitalization[AFRC,Supply]) * dt
INIT C3_C4_Requirements[AFRC,Supply] = 22.2

Deterioration[MAJCOM,Facility_Class] =
C1_C2_Plant_Value[MAJCOM,Facility_Class]/Recap_Years*Percent_MAJCOM_PRV[
MAJCOM]*Deterioration_Enabled
Revitalization[MAJCOM,Facility_Class] =
Model_Effectiveness[MAJCOM,Facility_Class]
Deterioration_Enabled = 0
Funding_Rate = ARRAYSUM(Revitalization[*,*])
Percent_MAJCOM_PRV[ADW] = 0.004
Percent_MAJCOM_PRV[AFSOC] = 0.005
Percent_MAJCOM_PRV[USAFA] = 0.015
Percent_MAJCOM_PRV[AETC] = 0.09
Percent_MAJCOM_PRV[ACC] = 0.148
Percent_MAJCOM_PRV[USAFE] = 0.069
Percent_MAJCOM_PRV[PACAF] = 0.117
Percent_MAJCOM_PRV[AFMC] = 0.222
Percent_MAJCOM_PRV[AFSPC] = 0.111
Percent_MAJCOM_PRV[AMC] = 0.112
Percent_MAJCOM_PRV[ANG] = 0.069
Percent_MAJCOM_PRV[AFRC] = 0.038
Recap_Years = 67
Total_C1_and_C2 = ARRAYSUM(C1_C2_Plant_Value[ANG,*])
Total_C3_and_C4 = ARRAYSUM(C3_C4_Requirements[*,*])
Total_Degrade = ARRAYSUM(Deterioration[*,*])
Model_Confidence(t) = Model_Confidence(t - dt) + (- Tradeoff) * dt
INIT Model_Confidence = 100
Tradeoff (Not in a sector)
Tradeoff = Model_Confidence*(1-Confidence_Factor)*Corporate_Adjustments_Allowed

OUTFLOW FROM: Model_Confidence   (IN SECTOR: Model Confidence)

INFLOW TO: Corporate_Adjustments   (IN SECTOR: Corporate Adjustments)
ACC_Result = ARRAYSUM(C3_C4_Requirements[ACC,*])
AFMC_Result = ARRAYSUM(C3_C4_Requirements[AFMC,*])
ANG_Result = ARRAYSUM(C3_C4_Requirements[ANG,*])
Confidence_Factor = ARRAYSUM(Model_Effectiveness[*,*])/MILCON_Funding
Corporate_Adjustments_Allowed = 1
MILCON_Funding = 1500

Appendix B – Gold Standard Affinity Diagram Results

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Efficiencies						
Balance between performance and cost	X					
Cost avoidance	X					
Deliver in cost-efficient manner	X					
Economics		X				
Effective manner			X			
Efficiencies in facility management						X
Efficient and effective base operating environment			X		X	
Efficient manner			X			
Efficient support			X			
Full return on investment	X					
Improve operational efficiency					X	X
Increase efficiency		X				
Investment strategy based on mission and economic rationale			X			
Joint use	X					
Life cycle based planning	X					
Life cycle cost analysis	X					

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Lower total ownership costs	X					
Lowest life cycle cost				X		
Maximize return on investment			X			
Maximum operating efficiency			X			
Operational efficiency		X				
Operationally effective		X				
Privatization	X					
Procure properly designed facilities	X					
Reduce cost of doing business			X			
Reduce energy consumption	X					
Reduce future costs						X
Reduce resource requirements of facilities	X					
Reduce unnecessary cost					X	X
Reduce water consumption	X					
Right resources	X					
Sustainable design	X					
Within authorities and resources				X		
Mission						

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Capabilities						
Accommodate new system acquisitions and force structure					X	
Achieve a 67-year recapitalization rate (by 2010)					X	X
Acquire new facilities						
Administrative support		X				
Beddown		X				
Beddown force structure		X				
Current needs		X				
Current requirements	X					
Current systems		X	X			
Demographics		X				
Enhance readiness	X				X	X
Enhances combat capability					X	X
Force restructure			X			
Future capabilities		X	X			
Future requirements	X					
Future weapon system needs		X				
Improve facility classes rated C-3/C-4					X	
Improve facility conditions						X
Infrastructure investment			X			
Infrastructure						

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
supporting operations		X				
Launch		X				
Logistical support		X				
Meet validated requirements				X		
Mission		X				
Mission readiness						X
Modernization		X	X			
Modernize existing facilities	X					
New facilities for current and new needs	X					
New missions			X			
Physical plant replacement			X			
Preserve essential infrastructure			X			
Projection of aerospace power			X			
Readiness			X			
Readiness		X				
Recap deteriorated assets						X
Recap obsolete assets						X
Recapitalization requirements for infrastructure to support civil authorities in homeland security					X	
Recovery		X				
Restore readiness to C-2						X

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Support future combat operations		X				
Sustain facilities through useful life						X
Throughput for airlift		X				
Quality of Life						
Air Force personnel			X			
Compliance with Quality Standards				X		
Enduring facilities	X					
Enhance environmental stewardship	X					
Enhance morale	X					
Environmental leadership			X			
Environmentally sound		X				
Healthy facilities	X					
High quality of life		X				
Improve quality of service	X					
Installation excellence			X			
Maintain standards			X			
Perception of overall quality		X				
Provide quality working and living environment			X			
Quality of life	X	X	X		X	X
Quality of Service	X					
Right quality	X					

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Uphold quality of life			X			
Sense of Community						
Preclude conflicts with community	X					
Produce sense of community			X			
Sense of community		X	X		X	X
Strong sense of community			X			X
Responsiveness						
Delivery in timely manner	X					
In time to support missions	X					
Intensity of operations		X				
Rapid turn-around		X				
Respond to urgent needs	X					
Responsive support			X			
Timing	X					
Right Size/Right Place						
Balance between requirements and inventory	X					
Correctly sized facilities			X			
Divest excess infrastructure			X			
Eliminate excess						

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
facilities	X					X
Eliminate obsolete facilities	X					X
Evolving infrastructure		X				
Geography		X				
Location	X					
Overseas presence		X				
Realign existing facilities	X					
Reduce mobility footprint			X			
Right capabilities	X					
Right qualities and characteristics to support mission	X					
Right size and place	X					
Right size of other interests	X					
Right-sized infrastructure			X			
When needed				X		
Where needed				X		
Security						
Anti-terrorism force protection measures	X					
Force protection		X				
Mitigate identified terrorism and force protection					X	
Security					X	X
Planning and						

Groups/Concepts	OSD Posture Statement	AFDD 2-4.4 Bases, Infrastructure, and Facilities	Civil Engineer Strategic Plan	AFI 32-1021, Planning and Programming Facility Construction	Annual Planning and Programming Guidance	Facility Investment Program
Evaluation						
Agile infrastructure			X			
Avoid catastrophic failure			X			
Directly link planning priorities with allocation process			X			
Long range plan	X					
Long-term view	X					
Right tools and metric	X					

Appendix C – Base Populations

Source: AF/XPMP and Air Force Almanac

Base	State	Total Population
Al Udeid		Not Available*
Alconbury	UK	Not Available*
Andersen	GU	3401
Andrews	MD	8934
Arnold	TN	2823
Aviano	IT	5477
Barksdale	LA	7306
Beale	CA	5541
Blair Lake Range	AK	Not Available*
Bolling	DC	3701
Brooks	TX	3276
Buckley	CO	1828
Cannon	NM	4352
Cape Lisburne	AK	Not Available*
Charleston	SC	5124
Cheyenne	WY	292
Columbus	MS	2553
Croughton	UK	Not Available*
Davis-Monthan	AZ	7892
Dobbins	GA	500
Dover	DE	5082
Dyess	TX	5919
Edwards	CA	9194
Eglin	FL	13844
Eglin 9	FL	8703
Eielson	AK	4810
Ellsworth	SD	4132
Elmendorf	AK	11341
Fairchild	WA	4889
FE Warren	WY	4096
Forbes Field	KS	297
Ft Dix (AMWC)	NJ	Not Available*
Ft Indiantown	PA	Not Available*
Galena	AK	Not Available*
Gen Mitch	WI	708
Goodfellow	TX	3556
Grand Forks	ND	3270

Base	State	Total Population
Grissom	IN	700
Hickam	HI	5895
Hill	UT	28620
Holloman	NM	5900
Incirlik	TU	5790
Indian Springs	NV	Not Available*
Kadena	JA	11942
Keesler	MS	11449
Kirtland	NM	9338
Kunsan	KO	3114
Lackland	TX	19571
Lajes Field	PO	1828
Lakenheath	UK	5987
Langley	VA	11072
Little Rock	AR	5635
Los Angeles	CA	8935
Luke	AZ	6560
MacDill	FL	6295
Malmstrom	MT	4153
March	CA	1443
Maxwell	AL	6179
McChord	WA	4939
McConnell	KS	2975
McEntire AGS	SC	88
McGuire	NJ	6907
Minn-St P	MN	446
Minot	ND	5607
Moody	GA	4000
Mt Home	ID	5528
Nellis	NV	10087
New Castle	DE	240
Niagara	NY	611
Offutt	NE	9153
Osan	KO	12535
Otis ANGB	MA	74
Patrick	FL	3576
Peterson	CO	5997
Pope	NC	5915
Portland	OR	401
Quonset State	RI	234
Ramstein	GE	13789

Base	State	Total Population
Randolph	TX	9820
Robins	GA	22820
Savannah IAP	GA	246
Schriever	CO	3099
Scott	IL	14950
Seymour Johnson	NC	5389
Shaw	SC	6438
Sheppard	TX	12027
Spangdahlem	GE	4983
Stanly County	NC	Not Available*
Thule	GL	862
Tinker	OK	30392
Travis	CA	9449
Tularosa	NM	Not Available*
USAFA	CO	8390
Vandenberg	CA	5603
Westover	MA	913
Whiteman	MO	5000
Will Rogers	OK	Not Available*
Wright-Pat	OH	22698
Youngstown	OH	5000

* Data not available assumed to be less than 2000 people.

Appendix D – Value Hierarchy Local Weights

Tier 1 Objective	Tier 2 Sub-Objective	Tier 3 Sub-Objective	Measure	Local Weight (0 to 1)
Efficiencies				0.2
	Operational			0.6
		Right Place		0.6
			Force Structure	1
		Right Size		0.4
			Consolidation	0.35
			Footprint Reduction	0.65
	Resources			0.4
		Joint Use		0.5
			Joint Use	1
		Economics		0.5
			Payback	1
Operational Support				0.5
	Readiness			0.45
		Reduce Deficit		0.5
			Improves IRR	1
		Restore & Modernize		0.5
			Improves IRR	1
	Responsiveness			0.15
		Ability to Execute		0.1
			Design-Build	1
		Mission Timing		0.9
			Years to Need Date	0.1
			Mission Panel Priority	0.3
			Installation Commanders Priority	0.6
	Security			0.05
		Security		1
			Correct ATFP Deficiency	1
	Missions			0.35
		Combat		

Tier 1 Objective	Tier 2 Sub-Objective	Tier 3 Sub-Objective	Measure	Local Weight (0 to 1)
		Capability		0.7
			Provides direct operational support	1
		Mission Support		0.3
			Provides indirect mission support	1
Quality of Life				0.3
	Sense of Community			0.4
		Support Facilities		0.8
			Support facility	1
		Promotes community		0.2
			Base Population	1
	Workplace Quality of Life			0.6
		Modern Facilities		0.7
			Average Facility Age	1
		Safe Facilities		0.3
			Eliminates safety violation	1

Appendix E – Proposed MILCON Model Definitions and Assumptions

1. **Force Structure Measure.** Obtained force structure score from existing military construction model mission category measure. Mission category measure of "A" represents force structure related project and received a score of "Yes" for force structure measure. All others received scores of "No."

2. **Consolidation Measure.** Obtained consolidation measure score from existing military construction model operations efficiencies points. Operations efficiencies points totaling 0.75 indicated consolidation and received a score of "Yes" for consolidation measure. All others received scores of "No."

3. **Footprint Reduction Measure.** Obtained footprint reduction measure score from existing military construction model IPT demolition points. Demolition points totaling 0.75 received a score of "Reduction greater than 100 percent" while points greater than 0 but less than 0.75 received a score of "Reduction less than 100 percent" and 0 points received a score of "No reduction."

4. **Joint-Use Measure.** Obtained joint-use measure score from the Automated Civil Engineering Support System. Within the "ACES_DD_1391_RECORDS" table, a memo field labeled "JOINT_USE_TX" provided information regarding the proposed joint-use of the project in question. Projects with verbiage indicating an active joint-use endeavor received a score of "Yes." All others received a score of "No." A joint-use statement stating "This project can be used by other components…" did not qualify for a "Yes" score since no apparent plans for joint-use existed.

5. **Payback Measure.** Obtained payback measure score from existing military construction model operations efficiencies points. Operations efficiencies points totaling 1.25 received a score of “Yes.” All others received a score of “No.”

6. **Deficit IRR (Improves Readiness).** Only new mission projects scored with this measure. Obtained score from FY2001 Installation Readiness Rating Database (available from HAF/ILEP). Scores based on relevant facility class at project location. Facility classes rated C-3 or C-4 with a designated MILCON amount for C-2 attainment received the rating as the score (ie C-3 or C-4). Scored project C-2 in those cases where MILCON dollar amount for C-2 attainment equaled “0” despite a C-3 or C-4 facility class rating since project would not have improved facility class rating from C-3 or C-4. Additionally, the author scored all projects in C-1 and C-2 rated facility classes as C-1 or C-2 respectively. Finally, in cases where data was not available for the project location, the author used the major command average rating for the facility class in question.

7. **Restoration and Modernization (Improves Readiness).** Only current mission projects scored with this measure. Obtained score from FY2001 Installation Readiness Rating Database (available from HAF/ILEP). Scores based on relevant facility class at project location. Facility classes rated C-3 or C-4 with a designated MILCON amount for C-2 attainment received the rating as the score (ie C-3 or C-4). Scored project C-2 in those cases where MILCON dollar amount for C-2 attainment equaled “0” despite a C-3 or C-4 facility class rating since project would not have improved facility class rating from C-3 or C-4. Additionally, the author scored all projects in C-1 and C-2 rated facility classes as C-1 or C-2 respectively. Finally, in cases where data was not

available for the project location, the author used the major command average rating for the facility class in question.

8. **Design-Build.** Obtained design-build measure score from the Automated Civil Engineering Support System. Within the "ACES_PROJECTS" table, a text field labeled "PD_PROJECT_DSG_METHOD_CD" provided information regarding the proposed design method of the project in question. Projects labeled "DB" indicated design-build and received a score of "Yes." All others received a score of "No."

9. **Years to IOC/Need Date Measure.** Obtained need date measure score from existing military construction model mission timing points. Mission timing points totaling 1.0 received a score of "Yes." All others received a score of "No."

10. **Mission Panel Priority Measure.** Obtained mission panel priority measure score by sorting projects according to 1) facility class (ascending), 2) mission impact (descending), and 3) MAJCOM priority (ascending). Priorities assigned within facility class groupings from 1 for the top project in a facility class to N for the last project in a facility class. The priority assigned represented the score for this measure.

11. **Installation Commander Priority Measure.** Obtained installation commander priority measure score by sorting projects according to 1) base (ascending), 2) MAJCOM priority (ascending), and 3) mission impact (descending). Priorities assigned within base groupings from 1 for the top project at a base to N for the last project at a base. The priority assigned represented the score for this measure.

12. **Corrects Anti-Terrorism/Force Protection Deficiency Measure.** Scoring involved a subjective review of project titles for indications of anti-terrorism or force

protection deficiencies corrections. These projects received a “Yes” score while others received a “No” score.

13. **Provides Direct Operational Support Measure.** Scoring involved a subjective review of project titles for indications of direct operational support. These projects received a “Yes” score while others received a “No” score.

14. **Provides Indirect Mission Support Measure.** Scoring involved a subjective review of project titles for indications of indirect mission support. These projects received a “Yes” score while others received a “No” score.

15. **Average Age of Facility Measure.** Data obtained from the real property database from FY2000. A custom query averaged ages of facilities according to base and category code. The category code average age represented the score for the project under this measure. The author used the average age for facility classes at the base when the category code average age was not available. Additionally, in cases where the base was not in the real property database, the average age for the category at the major command level was used.

16. **Eliminates Safety Violation Measure.** Obtained safety measure score from the Automated Civil Engineering Support System. Within the “ACES_DD_1391_RECORDS” table, a memo field labeled “CURR_SITUATION_TX” provided information regarding if the project addressed a safety issue. Thos projects with indications that they corrected safety issues received a “Yes” score. All others received a score of “No.”

17. **Support Facilities Measure.** Scoring involved a subjective review of project titles for indications of support facilities such as morale, welfare, and recreation facilities. These projects received a "Yes" score while others received a "No" score.

18. **Population Measure.** Data used to determine population measure score came from the FY2002 base summary information or DD1390. The 2002 Air Force Alamanac provided data for bases not contained in the FY2002 base summaries. Minor bases not listed in the almanac were assumed to be in the lowest scoring category (< 2,000). Scores assigned based on total population figures including officer, enlisted, and civilian personnel.

Appendix F – Installation Readiness MILCON Requirements

FY 2001 USAF IRR C-3 and C-4 Backlog

FACILITY CLASS	AF MILCON ($M)	O&M ($M)	OTHER ($M)	TOTAL ($M)
OPS & TRNG	$2,565	$567	$352	$3,484
MOBILITY	$243	$8	$64	$315
MAINT & PROD	$2,695	$272	$124	$3,091
RDT&E	$328	$40	$276	$644
SUPPLY	$543	$93	$29	$665
MEDICAL	N/A	N/A	$280	$280
ADMIN	$798	$107	$103	$1,008
CMTY SPT	$1,722	$275	$68	$2,065
MFH**	$4,139	N/A	$382	$4,521
DORMS	$840	$207	$59	$1,106
UTIL & GRNDS	$604	$500	$52	$1,156
TOTAL	$14,477	$2,069	$1,788	$18,333

** Military Family Housing MILCON requirements are programmed and funded separately from the regular MILCON account.

Appendix G –MAJCOM MILCON Requirements to C-2

MAJCOM	MILCON Requirements to C-2 ($000)
ANG	2,121,760
PACAF	1,625,129
AFMC	1,620,738
AMC	1,366,321
AETC	1,007,359
ACC	988,872
USAFE	670,276
AFSPC	523,173
AFRC	279,370
AFSOC	80,716
USAFA	25,400
11 Wg	8,750
Total	10,317,864

Appendix H – Existing Model Results

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
ANG	1	TWLR949661	Maint Prod	Quonset State	RI	Replace Composite Aircraft Maintenance Complex	18,500	18,500	A	1	35.0	2.0	0.75	1.00	0.75	0.00	2.50	60.00	0.070	99.5
AFSOC	1	FTEV013019	Ops Trng	Eglin 9	FL	Special Tactics Advance Skills Trng Facility	7,800	26,300	B	1	34.5	2.0	1.25	1.00	0.75	0.00	3.00	60.00	0.005	99.5
USAFE	1	TYFR0230462	Ops Trng	Ramstein	GE	Consolidated 1st Combat Communication Squadron Complex, Ph 2	17,850	44,150	B	1	34.5	2.0	0.75	0.00	0.00	2.00	2.75	60.00	0.069	99.3
AFMC	1	KRSM003013	Supply	Hill	UT	Replace Munitions Storage Igloos	13,000	57,150	B	1	34.5	2.0	0.75	1.00	0.50	0.00	2.25	60.00	0.221	98.8
AFRC	1	MAHG043005	Maint Prod	Keesler	MS	Fuel Systems Maintenance Hangar	7,200	64,350	A	1	35.0	2.0	0.00	1.00	0.75	0.00	1.75	60.00	0.038	98.8
PACAF	1	MLWR013144	Ops Trng	Kunsan	KO	Upgrade Hardened Aircraft Shelters	7,000	71,350	B	1	34.5	2.0	0.00	0.00	0.00	2.00	2.00	60.00	0.116	98.5
AETC	1	PNQS033137	Cmty Spt	Maxwell	AL	SOS Dormitory, Phase 3	13,400	84,750	B	1	34.5	2.0	0.00	0.00	0.00	0.00	0.00	60.00	0.090	96.5
ACC	1	FTEV993029	Ops Trng	Eglin 9	FL	AFC2TIG Systems/Warrior School Complex	16,300	101,050	B	2	32.5	2.0	0.75	0.00	0.50	0.00	1.25	60.00	0.148	95.8
AMC	1	PQWY973000	Admin	McChord	WA	Mission Support Center, Ph 2	19,000	120,050	B	2	32.5	2.0	0.75	0.00	0.00	0.00	0.75	60.00	0.112	95.3
USAFA	1	XQPZ950111	Ops Trng	USAFA	CO	Upgrade Academic Facility, Phase 4	23,000	143,050	B	2	32.5	2.0	0.75	0.00	0.00	0.00	0.75	60.00	0.015	95.3
AFSPC	1	QJVF952007	Maint Prod	Minot	ND	ADAL Missile Maintenance Vehicle Facility	3,200	146,250	B	2	32.5	2.0	0.75	0.00	0.00	0.00	0.75	60.00	0.111	95.3
11WG	1	BXUR050003	Cmty Spt	Bolling	DC	Fitness Center	13,600	159,850	C	2	32.0	2.0	0.75	0.00	0.00	0.00	0.75	60.00	0.004	94.8
ACC	2	KRSM033001	Maint Prod	Hill	UT	729th ACS Operations/Maintenance Complex	4,350	164,200	A	1	35.0	2.0	0.75	1.00	0.00	0.00	1.75	55.96	0.148	94.7
PACAF	2	SMYU013100	Ops Trng	Osan	KO	Add/Alter Sq Ops/AMU Facility	17,000	181,200	A	1	35.0	2.0	0.75	0.00	0.00	2.00	2.75	54.85	0.116	94.6
AFMC	2	TUAL043007	RDTE	Tularosa	NM	Upgrade National Radar Cross Section Test Facility	3,600	184,800	B	1	34.5	2.0	0.75	0.00	0.00	0.00	0.75	57.29	0.221	94.5
AMC	2	FJXT033002	Ops Trng	Dover	DE	Air Traffic Control Facility	7,500	192,300	B	1	34.5	2.0	0.75	0.00	0.75	0.00	1.50	54.63	0.112	92.6
USAFE	2	VYHK023001	Strat Mob	Spangdahlem	GE	Passenger Terminal	1,400	193,700	A	1	35.0	2.0	0.75	1.00	0.00	2.00	3.75	51.28	0.069	92.0
ACC	3	QYZH577997	Maint Prod	Mt Home	ID	Operations/Maintenance Complex (726th ACS)	8,200	201,900	A	1	35.0	2.0	0.75	1.00	0.00	0.00	1.75	51.91	0.148	90.7
AFSPC	2	ACJP980011	Supply	Los Angeles	CA	Logistics Operations Resource Center	12,800	214,700	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	54.58	0.111	90.6
AFMC	3	CNBC073001	RDTE	Brooks	TX	Tri-Service Research Facility	23,000	237,700	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	54.58	0.221	90.6
ANG	2	LKLW939772	Ops Trng	Ft Indiantown	PA	Replace Composite Support Complex	14,200	251,900	B	1	34.5	2.0	0.75	0.00	0.75	0.00	1.50	51.45	0.070	89.5
AETC	2	EEPZ993006	Ops Trng	Columbus	MS	Replace Control Tower	6,100	258,000	B	2	32.5	2.0	0.00	0.00	0.50	0.00	0.50	53.35	0.090	88.3
AFMC	4	ANZY033002	RDTE	Arnold	TN	Improve Propulsion Altitude Capability	32,000	290,000	B	2	32.5	2.0	1.25	0.00	0.00	0.00	1.25	51.87	0.221	87.6
AMC	3	PTFL973009	Utils Grnds	McGuire	NJ	Electrical Distribution System	11,800	301,800	B	1	34.5	2.0	0.00	0.00	0.00	0.00	0.00	49.26	0.112	85.8
AFSPC	3	SXHT973002C	Cmty Spt	Patrick	FL	Security Forces Operations Facility	8,400	310,200	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	49.17	0.111	85.2
ACC	4	MUHJ023010	Ops Trng	Langley	VA	Operations Support Center	24,000	334,200	B	1	34.5	2.0	0.75	0.00	0.00	0.00	0.75	47.87	0.148	85.1
AFMC	5	ZHTV963204	Ops Trng	Wright-Pat	OH	Consolidated Fire/Crash Rescue Station	10,400	344,600	B	2	32.5	2.0	0.75	0.00	0.50	0.00	1.25	49.16	0.221	84.9
PACAF	3	KNMD053001	Admin	Hickam	HI	Operationalize HQ PACAF Building, Ph 1 of 2	23,000	367,600	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	49.69	0.116	84.2
AETC	3	MPLS993284	Cmty Spt	Lackland	TX	Consolidated Security Forces Ops Fac	7,800	375,400	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	46.70	0.090	82.7
AFMC	6	FSPM963504	RDTE	Edwards	CA	Replace Engineering Technical Facility	20,000	395,400	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	46.45	0.221	81.4
AFMC	7	FTFA023004	Ops Trng	Eglin	FL	Replace Explosive Ordnance Disposal Complex	2,700	398,100	B	1	34.5	1.0	0.00	1.00	0.50	0.00	1.50	43.74	0.221	80.7
AFRC	2	KNMD979604	Ops Trng	Hickam	HI	Consolidated Training Facility	6,100	404,200	B	1	34.5	2.0	0.00	0.00	0.00	0.00	0.00	44.21	0.038	80.7
ACC	5	MQNA033005	Maint Prod	Lajes Field	PO	Repair Aircraft Maintenance Hangar	14,800	419,000	B	2	32.5	2.0	0.00	0.00	0.00	2.00	2.00	43.83	0.148	80.3
USAFE	3	MSET043000	Strat Mob	Lakenheath	UK	AEF Cargo Processing	15,950	434,950	B	2	32.5	2.0	0.75	0.00	0.00	2.00	2.75	42.56	0.069	79.8
ANG	3	XDQU919578	Cmty Spt	Savannah IAP	GA	Replace Troop Quarters and Dining Hall Complex	29,000	463,950	B	1	34.5	1.0	0.75	0.00	0.50	0.00	1.25	42.91	0.070	79.7
PACAF	4	KNMD013001	Utils Grnds	Hickam	HI	Upgrade Electrical Distribution System	15,500	479,450	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	44.54	0.116	79.0
AFSPC	4	TDKA033002	Admin	Peterson	CO	Mission Support Facility PH II	10,400	489,850	B	2	32.5	2.0	0.75	0.00	0.00	0.00	0.75	43.75	0.111	79.0
AMC	4	AJXF043001	Admin	Andrews	MD	Upgrade Wing Headquarters, Phase 1	9,700	499,550	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	43.89	0.112	78.4
AMC	5	VDYD943015	Ops Trng	Scott	IL	Squadron Operations Facility	12,800	512,350	B	1	34.5	2.0	0.75	0.00	0.50	0.00	1.25	38.51	0.112	76.3
AETC	4	NUEX993001	Ops Trng	Luke	AZ	Consolidate Communications Ops Center	12,200	524,550	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	40.04	0.090	76.0
ACC	6	MQNA003001	Cmty Spt	Lajes Field	PO	Transient Quarters	12,600	537,150	B	2	32.5	1.0	0.00	0.00	0.50	2.00	2.50	39.78	0.148	75.8

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
AFMC	8	JUBJ023135	Admin	Maxwell	AL	Integrated Operational Support Facility	16,000	553,150	B	2	32.5	1.0	0.75	0.00	0.50	0.00	1.25	41.03	0.221	75.8
PACAF	5	FTQW033003	Maint Prod	Eielson	AK	Repl/Consolid Munitions Surveil & Inspect Shop	4,700	557,850	B	2	32.5	2.0	0.75	0.00	0.75	0.00	1.50	39.38	0.116	75.4
AFMC	9	FSPM003501	Ops Trng	Edwards	CA	Replace Information Technology Operations Center	14,200	572,050	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	38.32	0.221	73.3
ANG	4	SPBN029135	Ops Trng	Otis ANGB	MA	Replace Fire Crash/Rescue Station and Control Tower	16,500	588,550	B	1	34.5	2.0	0.75	0.00	0.50	0.00	1.25	34.36	0.070	72.1
AFSPC	5	GHLN993003	Utils Grnds	FE Warren	WY	Upgrade Stormwater Drainage System	15,000	603,550	D	2	31.5	2.0	0.00	0.00	0.00	0.00	0.00	38.34	0.111	71.8
USAFE	4	TYFR033044	Maint Prod	Ramstein	GE	CES Midfield Complex	6,900	610,450	B	2	32.5	2.0	0.75	0.00	0.50	2.00	3.25	33.84	0.069	71.6
ACC	7	CZQZ983002	Cmty Spt	Cannon	NM	Security Forces Operations Facility	3,750	614,200	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	35.74	0.148	70.7
PACAF	6	SMYU993035	Maint Prod	Osan	KO	Replace PMEL Facility	3,800	618,000	B	2	32.5	1.0	0.00	0.00	0.50	2.00	2.50	34.23	0.116	70.2
AFMC	10	ANZY033001	RDTE	Arnold	TN	Upgrade Jet Engine Air Induction Sys, Phase V	11,200	629,200	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	35.61	0.221	69.1
AMC	6	DKFX913001	Maint Prod	Charleston	SC	Civil Engineer/Contracting Complex	18,500	647,700	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	33.14	0.112	68.1
ACC	8	VLSB983002R3	Ops Trng	Shaw	SC	USCENTAF Communications Squadron Facility	9,100	656,800	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	31.70	0.148	66.7
AETC	5	ZHTV013001	Ops Trng	Wright-Pat	OH	Alter Graduate Education Facility	13,000	669,800	C	2	32.0	1.0	0.00	0.00	0.00	0.00	0.00	33.39	0.090	66.4
AFMC	11	WWYK043019	Utils Grnds	Tinker	OK	Force/Asset Protection Land Acquisition	8,700	678,500	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	32.90	0.221	65.4
AFSPC	6	XUMU033002	Cmty Spt	Vandenberg	CA	Base Education Center	14,800	693,300	C	3	30.0	1.0	0.75	0.00	0.50	0.00	1.25	32.92	0.111	65.2
AFRC	3	TQKD980443P2	Ops Trng	Portland	OR	Consolidated Training Facility Phase 2	3,800	697,100	B	1	34.5	2.0	0.00	0.00	0.00	0.00	0.00	28.42	0.038	64.9
USAFE	5	TYFR033042	Medical	Ramstein	GE	86 AES Facility	9,100	706,200	B	2	32.5	2.0	0.75	0.00	0.50	2.00	3.25	25.12	0.069	62.9
AFMC	12	ANZY013008	RDTE	Arnold	TN	Consolidate Rocket Test Altitude Capability	7,300	713,500	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	30.19	0.221	62.7
ACC	9	FXBM003002	Ops Trng	Ellsworth	SD	Base Operations Facility	10,000	723,500	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	27.65	0.148	62.7
PACAF	7	HPZW013100B	Ops Trng	Galena	AK	Repair Airfield Pavement	15,000	738,500	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	29.07	0.116	62.6
AFMC	13	MHMV043091	RDTE	Kirtland	NM	Replace High Power Gas Laser Lab Complex	8,400	746,900	B	1	34.5	0.0	0.00	0.00	0.50	0.00	0.50	27.48	0.221	62.5
ANG	5	PDPG019050	Maint Prod	March	CA	Replace Aircraft Maintenance Hangar and Shops	19,500	766,400	B	1	34.5	1.0	0.75	0.00	0.00	0.00	0.75	25.81	0.070	62.1
AMC	7	XDAT963103P1	Maint Prod	Travis	CA	AMOG Global Deployment Center	15,000	781,400	B	2	32.5	1.0	0.75	0.0	0.00	0.00	0.75	27.77	0.112	62.0
AETC	6	PNQS983126	Ops Trng	Maxwell	AL	ADAL AU Library	13,000	794,400	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	26.74	0.090	61.2
PACAF	8	LXEZ023920	Utils Grnds	Kadena	JA	Upgrade Fire Protection Systems	9,900	804,300	B	2	32.5	1.0	0.00	0.00	0.00	2.00	2.00	23.92	0.116	59.4
ACC	10	VKAG973009	Admin	Seymour Johnson	NC	Operations/Logistic Group Complex	12,200	816,500	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	23.61	0.148	58.6
AFSPC	7	NZAS013003	Cmty Spt	Malmstrom	MT	Construct Community Activity Center	4,550	821,050	C	3	30.0	1.0	0.00	0.00	0.00	0.00	0.00	27.51	0.111	58.5
AETC	7	VNVP043002	Ops Trng	Sheppard	TX	Consolidated Airfield Ops Complex	11,400	832,450	B	1	34.5	2.0	0.75	0.00	0.75	0.00	1.50	20.09	0.090	58.1
AMC	8	PTFL003008	Admin	McGuire	NJ	Consolidated Air Mobility Sq Fac (3Ea)	17,000	849,450	B	2	32.5	1.0	0.75	0.00	0.50	0.00	1.25	22.40	0.112	57.1
AFMC	15	FTFA013018	RDTE	Eglin	FL	Consolidated Test and Evaluation Operations Facility	13,400	862,850	B	2	32.5	0.0	1.25	0.00	0.50	0.00	1.75	22.06	0.221	56.3
AFMC	14	ZHTV053204	RDTE	Wright-Pat	OH	Information Technology Complex, Phase 1	25,000	887,850	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	24.77	0.221	56.0
USAFA	2	XQPZ034001	Utils Grnds	USAFA	CO	Sludge Dewatering Fac. (WWTP)	1,300	889,150	B	2	32.5	1.0	1.25	0.00	0.00	0.00	1.25	20.00	0.015	54.8
ANG	6	JLWS989009	Ops Trng	New Castle	DE	Replace C-130 Parking Apron and Taxiway	10,800	899,950	B	1	34.5	1.0	0.75	0.00	0.75	0.00	1.50	17.26	0.070	54.3
ACC	11	FBNV023002R2	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (43rd ECS)	8,800	908,750	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	19.57	0.148	53.3
AFSPC	8	CRWU073005	Cmty Spt	Buckley	CO	Dining Hall	3,000	911,750	C	3	30.0	1.0	0.00	0.00	0.00	0.00	0.00	22.09	0.111	53.1
PACAF	9	KNMD033001R1	Strat Mob	Hickam	HI	Consol Joint Mobility Complex (PACAF/AMC)	29,800	941,550	B	2	32.5	1.0	0.75	0.00	0.00	0.00	0.75	18.76	0.116	53.0
USAFE	6	VYHK003102	Maint Prod	Spangdahlem	GE	CE Pavements & Equipment Compound	9,800	951,350	B	2	32.5	1.0	0.75	0.00	0.00	2.00	2.75	16.40	0.069	52.6
AFSPC	9	ACJP023028	Admin	Los Angeles	CA	SMC Headquarters Facility	32,000	983,350	B	2	32.5	1.0	0.75	1.00	0.50	0.00	2.25	16.68	0.111	52.4
AFMC	16	ANZY993003	Maint Prod	Arnold	TN	Consolidated Civil Engineering Complex	16,000	999,350	D	2	31.5	0.0	0.75	0.00	0.75	0.00	1.50	19.35	0.221	52.3
AMC	9	XDAT973250R1	Ops Trng	Travis	CA	C-5 Squad Ops/AMU	9,600	1,008,950	B	2	32.5	1.0	0.75	0.00	0.00	0.00	0.75	17.03	0.112	51.3
PACAF	10	MLWR053121	Cmty Spt	Kunsan	KO	Repl Consolid Personnel Process/Theater Fac	4,600	1,013,550	B	2	32.5	1.0	0.75	0.00	0.50	2.00	3.25	13.61	0.116	50.4
ACC	12	FBNV033003R1	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (41st ECS)	9,400	1,022,950	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	15.53	0.148	49.3

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
AETC	8	MAHG043001	Cmty Spt	Keesler	MS	Replace Fire/Crash Rescue Station	9,200	1,032,150	B	2	32.5	2.0	0.00	0.00	0.75	0.00	0.75	13.44	0.090	48.7
AFMC	17	ZHTV053202	Utils Grnds	Wright-Pat	OH	Replace Steam Lines/Tunnels Area B, PH-I	11,600	1,043,750	D	2	31.5	0.0	0.00	0.00	0.00	0.00	0.00	16.64	0.221	48.1
AFRC	4	QJKL990011P4	Cmty Spt	Minn-St P	MN	Consolidated Lodging Phase 4	6,450	1,050,200	C	2	32.0	1.0	0.00	0.00	0.75	0.00	0.75	12.63	0.038	46.4
ANG	7	PTFL899638	Maint Prod	McGuire	NJ	Replace Aircraft Maintenance Hangar and Shops	23,000	1,073,200	B	1	34.5	1.0	0.75	0.00	0.75	0.00	1.50	8.72	0.070	45.7
AFMC	18	CNBC043001R	Admin	Brooks	TX	Consolidated Acquisition/Support Facility	13,400	1,086,600	B	3	30.5	0.0	0.75	0.00	0.50	0.00	1.25	13.93	0.221	45.7
AFSPC	10	QJVF013100	Maint Prod	Minot	ND	Security Forces Vehicle Support Facility	6,500	1,093,100	B	2	32.5	1.0	0.75	0.00	0.00	0.00	0.75	11.26	0.111	45.5
ACC	13	FXBM993001	Ops Trng	Ellsworth	SD	B-1B Squadron Operations/AMU Facility	12,600	1,105,700	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	11.48	0.148	45.2
AMC	10	PRQE045002R1	Maint Prod	McConnell	KS	Corrosion Control Facility	19,000	1,124,700	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	11.66	0.112	45.2
USAFE	7	TYFR0530402	Admin	Ramstein	GE	Contingency Response Group Ph 2	18,900	1,143,600	B	2	32.5	1.0	0.75	0.00	0.00	2.00	2.75	7.67	0.069	43.9
AFMC	19	FSPM035501	Cmty Spt	Edwards	CA	Fitness Center	13,400	1,157,000	C	3	30.0	0.0	0.00	0.00	0.00	0.00	0.00	11.22	0.221	41.2
ACC	14	CZQZ993002	Maint Prod	Cannon	NM	Aerospace Ground Equipment (AGE) Complex	8,700	1,165,700	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	7.44	0.148	41.2
PACAF	11	FXSB023014	Ops Trng	Elmendorf	AK	Repair Runway/Taxiway Pavement	7,300	1,173,000	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	8.45	0.116	41.0
AETC	9	PTFL033013	Ops Trng	McGuire	NJ	ADAL NCOA Academic Fac and Dorms	20,000	1,193,000	C	2	32.0	2.0	0.00	0.00	0.00	0.00	0.00	6.78	0.090	40.8
AFMC	20	ZHTV013203	Admin	Wright-Pat	OH	Consolidate AFMC Law Offices	7,900	1,200,900	D	2	31.5	0.0	0.75	0.00	0.00	0.00	0.75	8.51	0.221	40.8
AFMC	21	UHHZ003014	Maint Prod	Robins	GA	Corrosion Control Depaint Facility	24,000	1,224,900	B	1	34.5	0.0	0.00	0.00	0.00	0.00	0.00	5.80	0.221	40.3
AMC	11	NVZR053707	Ops Trng	MacDill	FL	Air Traffic Control Fac/Crash Fire Station	14,000	1,238,900	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	6.28	0.112	39.5
AFSPC	11	XUMU003000	Cmty Spt	Vandenberg	CA	Add/Alter Child Development Center	5,300	1,244,200	C	2	32.0	0.0	0.75	0.00	0.50	0.00	1.25	5.85	0.111	39.1
PACAF	12	AJJY963110	Supply	Andersen	GU	Const Consolid War Reserve Mat Stor Fac	21,500	1,265,700	B	2	32.5	0.0	0.75	0.00	0.00	2.00	2.75	3.30	0.116	38.5
ACC	15	FTEV003009	Maint Prod	Eglin 9	FL	Vehicle Maintenance Facility (823 RHS)	5,900	1,271,600	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	3.40	0.148	37.1
AETC	10	PNQS053140	Cmty Spt	Maxwell	AL	SOC Lodging Facility, Phase IV	12,800	1,284,400	B	1	34.5	1.0	0.00	0.00	0.50	0.00	0.50	0.13	0.090	36.1
USAFE	8	TYFR023005	Maint Prod	Ramstein	GE	Vehicle Maintenance Facility	7,900	1,292,300	B	2	32.5	1.0	0.75	0.00	0.50	2.00	3.25	-1.05	0.069	35.7
AFMC	22	FTFA033011	RDTE	Eglin	FL	Offshore Target Area	21,000	1,313,300	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	3.09	0.221	35.6
ANG	8	GUQE989000	Ops Trng	Forbes Field	KS	Replace Operations and Training Complex	19,000	1,332,300	B	2	32.5	1.0	0.75	0.00	0.75	0.00	1.50	0.17	0.070	35.2
AFMC	23	ANZY013001	Utils Grnds	Arnold	TN	Power Distribution Control System	11,000	1,343,300	D	2	31.5	0.0	1.25	0.00	0.00	0.00	1.25	0.38	0.221	33.1
ACC	16	FNWZ993003R2	Ops Trng	Dyess	TX	B-1B Squadron Operations/AMU Facility	12,400	1,355,700	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	-0.65	0.148	33.1
AFSPC	12	TDKA033004	Cmty Spt	Peterson	CO	Widen West Gate	5,010	1,360,710	D	2	31.5	0.0	0.00	1.00	0.00	0.00	1.00	0.43	0.111	32.9
AMC	12	GJKZ902509Z	Maint Prod	Fairchild	WA	Civil Engineering Complex	22,000	1,382,710	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	0.91	0.112	32.2
AFMC	24	UHHZ003012	Maint Prod	Robins	GA	Consolidated Aircraft Maintenance Facility	7,800	1,390,510	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	-2.33	0.221	31.4
AFRC	5	VKAG979002	Ops Trng	Seymour Johnson	NC	Security Forces Facility	1,650	1,392,160	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	-3.16	0.038	31.3
PACAF	13	DBQT057001	Utils Grnds	Cape Lisburne	AK	Replace Site-Wide Infrastructure	27,000	1,419,160	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-1.86	0.116	30.6
ACC	17	MPLS043001	Ops Trng	Lackland	TX	Information Operations Center (AIA)	8,800	1,427,960	A	2	33.0	1.0	0.00	0.00	0.50	0.00	0.50	-4.69	0.148	29.8
ANG	9	DPEZ959713	Ops Trng	Cheyenne	WY	Replace Aerial Port and Air Traffic Control Complex	9,100	1,437,060	B	1	34.5	1.0	0.75	0.00	0.50	0.00	1.25	-8.38	0.070	28.4
AFMC	25	UHHZ003005	Ops Trng	Robins	GA	Replace Fire/Crash Rescue Station	6,100	1,443,160	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-5.04	0.221	28.0
AMC	13	TMKH023003	Maint Prod	Pope	NC	AGE Facility	6,400	1,449,560	B	3	30.5	0.0	0.75	0.00	0.50	0.00	1.25	-4.46	0.112	27.3
AFSPC	13	SXHT013006A	Cmty Spt	Patrick	FL	Child Development Center	6,400	1,455,960	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-4.98	0.111	27.0
USAFE	9	EXSW033005	Maint Prod	Croughton	UK	Transportation Complex	2,150	1,458,110	B	2	32.5	1.0	0.75	0.00	0.50	2.00	3.00	-9.77	0.069	26.7
PACAF	14	KNMD993001R1	Ops Trng	Hickam	HI	Repair Airfield Pavement, Phase 3	14,000	1,472,110	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-7.01	0.116	25.5
AFMC	27	KRSM023009	Ops Trng	Hill	UT	Consolidated Software Support Facility, Phase 1	16,500	1,488,610	B	1	34.5	0.0	1.25	0.00	0.00	0.00	1.25	-10.46	0.221	25.3
AFMC	26	FSPM043502	Ops Trng	Edwards	CA	Replace Base Operations Facility	6,800	1,495,410	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-7.75	0.221	25.2
ACC	18	VKAG973004R1	Ops Trng	Seymour Johnson	NC	Fire/Crash Rescue Station	10,600	1,506,010	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-8.73	0.148	24.5
AETC	11	JCGU033000	Admin	Goodfellow	TX	Consolidate Wing Support Complex	10,600	1,516,610	D	3	29.5	0.0	0.75	0.00	0.50	0.00	1.25	-6.52	0.090	24.2

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
AMC	14	JFSD200163P2	Ops Trng	Grand Forks	ND	Repair Drainage C-Ramp	5,700	1,522,310	B	2	32.5	0.0	1.25	0.00	0.00	0.00	1.25	-9.83	0.112	23.9
AETC	12	VNVP033005	Ops Trng	Sheppard	TX	Replace Trainer Maint/ Development Fac	17,500	1,539,810	B	2	32.5	2.0	0.00	0.00	0.75	0.00	0.75	-13.17	0.090	22.1
AFSPC	14	GHLN053003	Cmty Spt	FE Warren	WY	Learning Center and Library	8,300	1,548,110	C	3	30.0	0.0	0.50	0.00	0.75	0.00	1.25	-10.40	0.111	20.9
PACAF	15	KNMD063000	Cmty Spt	Hickam	HI	Replace Fire/Crash Rescue Station	13,600	1,561,710	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-12.16	0.116	20.8
ANG	10	YZEU009047	Maint Prod	Will Rogers	OK	Replace Composite Aircraft Maintenance Complex	23,000	1,584,710	B	1	34.5	2.0	0.75	0.00	0.50	0.00	1.25	-16.92	0.070	20.8
ACC	19	QJVF992001	Ops Trng	Minot	ND	Aircraft Parking Apron	19,000	1,603,710	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-12.78	0.148	20.5
AFRC	6	YTPM940004	Ops Trng	Westover	MA	Base Operations/Command Post	4,050	1,607,760	B	1	34.5	1.0	0.00	0.00	0.00	0.00	0.00	-18.95	0.038	16.6
USAFE	10	EXSW983002	Admin	Croughton	UK	BCE - Complex	5,100	1,612,860	D	2	31.5	1.0	0.75	0.00	0.00	2.00	2.50	-18.49	0.069	16.5
ACC	20	SGBP990903	Ops Trng	Offutt	NE	Fire/Crash Rescue Station	11,000	1,623,860	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-16.82	0.148	16.4
PACAF	16	FTQW033002	Maint Prod	Eielson	AK	Consolidated Munitions Vehicles/Trailers Warm Storage	7,600	1,631,460	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-17.32	0.116	15.9
AFSPC	15	NZAS954007	Cmty Spt	Malmstrom	MT	Add/Alter Fitness Center	7,200	1,638,660	C	3	30.0	0.0	0.75	0.00	0.00	0.00	0.75	-15.81	0.111	14.9
AMC	15	PTFL013010	Cmty Spt	Ft Dix (AMWC)	NJ	AMWC Visiting Quarters	15,000	1,653,660	C	3	30.0	0.0	0.00	0.00	0.00	0.00	0.00	-15.20	0.112	14.8
AETC	13	MPYJ973249	Cmty Spt	Lackland	TX	Replace Training Annex Fitness Center	5,300	1,658,960	C	2	32.0	1.0	0.00	0.00	0.50	0.00	0.50	-19.82	0.090	13.7
ACC	21	TMKH963003R1	Maint Prod	Pope	NC	A-10 ECM Consolidated Maintenance Facility	5,400	1,664,360	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-20.86	0.148	12.4
PACAF	17	SMYU003420	Maint Prod	Osan	KO	Replace Aircraft Fuel Systems Maintenance Hangar	7,500	1,671,860	B	2	32.5	0.0	0.00	0.00	0.00	2.00	2.00	-22.47	0.116	12.0
AMC	16	NKAK043006	Admin	Little Rock	AR	Add/Alter Group HQ	2,800	1,674,660	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	-20.57	0.112	10.7
AFSPC	16	GLEN043003	Cmty Spt	Schriever	CO	Add/Alter Fitness Center	10,800	1,685,460	C	3	30.0	0.0	0.75	0.00	0.00	0.00	0.75	-21.23	0.111	9.5
ACC	22	TMKH020009L	Ops Trng	Pope	NC	682nd Air Support Operations Squadron Facility	7,400	1,692,860	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-24.91	0.148	8.3
ANG	11	PSTE009070	Ops Trng	McEntire AGS	SC	Replace Operations and Training Complex	8,600	1,701,460	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	-25.47	0.070	8.3
AFSPC	17	CRWU073008	Ops Trng	Buckley	CO	Consolidate Fuel Center	6,000	1,707,460	B	2	32.5	0.0	0.75	1.00	0.50	0.00	2.25	-26.64	0.111	8.1
AMC	17	VDYD031900	Admin	Scott	IL	ADAL USTRANSCOM Facility	29,000	1,736,460	D	2	31.5	0.0	0.75	0.00	0.75	0.00	1.50	-25.94	0.112	7.1
USAFE	11	ASHE043000	Ops Trng	Aviano	IT	Base Operations	2,950	1,739,410	B	3	30.5	0.0	0.75	0.00	0.00	2.00	2.75	-27.21	0.069	6.0
PACAF	18	FXSB023001	Maint Prod	Elmendorf	AK	Convert Facility to Consolid Avionics Shop	6,300	1,745,710	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-27.63	0.116	5.6
AETC	14	VNVP023002	Utils Grnds	Sheppard	TX	Construct Auxiliary Water Service	1,300	1,747,010	D	2	31.5	0.0	0.00	0.00	0.00	0.00	0.00	-26.47	0.090	5.0
ACC	23	UHHZ983006R1	Maint Prod	Robins	GA	54th Combat Communication Squad Ops Facility	7,200	1,754,210	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-28.95	0.148	4.3
ACC	24	UHHZ013004	Ops Trng	Robins	GA	Flight Simulator Facility (93 ACW)	4,500	1,758,710	B	2	32.5	0.0	0.00	0.00	0.75	0.00	0.75	-32.99	0.148	0.3
AFSPC	18	GHLN053016	Ops Trng	FE Warren	WY	EOD Facility	3,500	1,762,210	A	3	31.0	0.0	0.00	1.00	0.00	0.00	1.00	-32.06	0.111	-0.1
ANG	12	WEFM979532	Ops Trng	Stanly County	NC	Relocate Communications and Electronics Training	9,900	1,772,110	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	-34.02	0.070	-0.3
AFRC	7	GLEN043003	Admin	Schriever	CO	Consolidated Space Group Operations	7,150	1,779,260	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	-34.74	0.038	-1.2
PACAF	19	BTSG073001R1	Ops Trng	Blair Lake Range	AK	Replace Range Maintenance Complex	19,500	1,798,760	B	3	30.5	0.0	0.00	0.00	0.75	0.00	0.75	-32.78	0.116	-1.5
AETC	15	NUEX993002	Admin	Luke	AZ	Replace Contracting Center	1,900	1,800,660	D	3	29.5	0.0	0.00	0.00	0.75	0.00	0.75	-33.13	0.090	-2.9
USAFE	12	ASHE043007	Admin	Aviano	IT	Consolidated Support Center (CSC), Phase 2	8,250	1,808,910	C	3	30.0	0.0	0.75	0.00	0.00	2.00	2.75	-35.93	0.069	-3.2
AFSPC	19	NZAS003000	Supply	Malmstrom	MT	Upgrade Weapons Storage Area, Phase 1	14,800	1,823,710	B	2	32.5	0.0	0.75	0.00	0.50	0.00	1.25	-37.47	0.111	-3.7
ACC	25	FBNV963007	Ops Trng	Davis-Monthan	AZ	Fire/Crash Rescue Station	9,500	1,833,210	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-37.04	0.148	-3.8
ACC	26	WWYK003006C	Maint Prod	Tinker	OK	31st Combat Communication Squad Ops Facility	9,800	1,843,010	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-41.08	0.148	-7.8
AFSPC	20	XUMU904019	Cmty Spt	Vandenberg	CA	Base Library	3,000	1,846,010	C	2	32.0	0.0	0.75	0.00	0.75	0.00	1.50	-42.89	0.111	-9.4
USAFE	13	TYFR043074	Ops Trng	Ramstein	GE	Hush House	14,100	1,860,110	B	2	32.5	0.0	0.75	0.00	0.00	2.00	2.75	-44.65	0.069	-9.4
AETC	16	JCGU043000	Cmty Spt	Goodfellow	TX	Replace Chapel Center	3,400	1,863,510	C	3	30.0	0.0	0.00	0.00	0.00	0.00	0.00	-39.78	0.090	-9.8
ACC	27	FNWZ993004	Maint Prod	Dyess	TX	Refueling Vehicle Maintenance Shop	1,800	1,865,310	B	2	32.5	0.0	0.00	0.00	0.75	0.00	0.75	-45.12	0.148	-11.9
AETC	17	JCGU023000	Ops Trng	Goodfellow	TX	Consolidated Comm Complex	7,000	1,872,310	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-46.43	0.090	-13.2
AFSPC	21	SXHT013001	Ops Trng	Patrick	FL	Fire Crash/Rescue Station	8,200	1,880,510	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-48.30	0.111	-15.3

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
ACC	28	KRSM043013	Maint Prod	Hill	UT	Consolidate Munitions Flight Maintenance	4,500	1,885,010	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-49.16	0.148	-15.9
AFRC	8	WWYK979043A	Ops Trng	Tinker	OK	Squadron Operations Facility	3,900	1,888,910	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	-50.53	0.038	-17.0
USAFE	14	MSET023001	Ops Trng	Lakenheath	UK	4-Bay Mission Trng Center	7,600	1,896,510	B	2	32.5	0.0	0.00	1.00	0.00	2.00	3.00	-53.37	0.069	-17.9
ACC	29	TMKH003002	Admin	Pope	NC	Fighter Group HQ Facility	3,800	1,900,310	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-53.21	0.148	-20.0
AETC	18	MAHG063000	Cmty Spt	Keesler	MS	ADAL Child Development Center	2,700	1,903,010	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-53.08	0.090	-21.1
AFSPC	22	GLEN953001	Cmty Spt	Schriever	CO	Security Forces Regional Training Facility	8,900	1,911,910	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-53.72	0.111	-21.2
ACC	30	UHHZ993009	Maint Prod	Robins	GA	51st Combat Communication Squad Ops Facility	4,500	1,916,410	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-57.25	0.148	-24.0
USAFE	15	MSET963014	Ops Trng	Lakenheath	UK	F-15C Sqd Ops/AMU (493rd FS)	10,350	1,926,760	B	2	32.5	0.0	0.75	0.00	0.50	2.00	3.25	-62.09	0.069	-26.3
ACC	31	KRSM043014	Maint Prod	Hill	UT	Structural Maintenance Facility	2,200	1,928,960	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-61.29	0.148	-28.0
AFSPC	23	TDKA063001	Utils Grnds	Peterson	CO	NORAD/USSPACE/ARSPACE Access	2,950	1,931,910	D	3	29.5	0.0	0.00	1.00	0.00	0.00	1.00	-59.13	0.111	-28.6
AETC	19	TYMX973002	Ops Trng	Randolph	TX	ADAL Airfield Pavements and Taxiway	10,800	1,942,710	D	3	29.5	1.0	0.00	0.00	0.00	0.00	0.00	-59.73	0.090	-29.2
AFSOC	2	FTEV973018	Ops Trng	Eglin 9	FL	Crash/Fire Rescue Station	5,700	1,948,410	B	2	32.5	1.0	0.50	0.00	0.75	0.00	1.25	-65.00	0.005	-30.3
ACC	32	FTEV013007	Supply	Eglin 9	FL	Mobility Warehouse (823 RHS)	2,050	1,950,460	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-65.34	0.148	-32.1
AFRC	9	CTGB989003	Maint Prod	Grissom	IN	Add/Alter Aircraft Maintenance Hangar	5,750	1,956,210	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	-66.32	0.038	-32.8
AETC	20	NKAK953011	Maint Prod	Little Rock	AR	Replace C-130 Maintenance Hangar	11,800	1,968,010	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	-66.39	0.090	-32.9
AFSPC	24	QJVF962007	Maint Prod	Minot	ND	Missile Operations Addition	9,000	1,977,010	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	-64.55	0.111	-33.3
AFSPC	25	CRWU053007	Maint Prod	Buckley	CO	Vehicle Maintenance Facility	4,600	1,981,610	A	2	33.0	0.0	0.75	1.00	0.00	0.00	1.75	-69.96	0.111	-35.2
ACC	33	QYZH983006R2	Ops Trng	Mt Home	ID	Base Operations Facility	8,700	1,990,310	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-69.38	0.148	-36.1
USAFE	16	AEDY043001	Cmty Spt	Alconbury	UK	Chapel Center	2,300	1,992,610	C	2	32.0	0.0	0.00	0.00	0.50	2.00	2.50	-70.81	0.069	-36.3
ACC	34	RKMF983002R3	Ops Trng	Nellis	NV	Explosive Ordnance Disposal Facility	4,500	1,997,110	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-73.42	0.148	-40.2
AETC	21	QSEU013001	Cmty Spt	Moody	GA	Construct Unaccompanied Officers Qtrs	9,800	2,006,910	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-73.04	0.090	-41.0
AFSPC	26	WWCX953005A	Utils Grnds	Thule	GL	Solid Waste Incinerator	7,500	2,014,410	B	3	30.5	0.0	0.00	0.00	0.00	2.00	2.00	-75.38	0.111	-42.9
USAFE	17	LJYC003006	Cmty Spt	Incirlik	TU	Consolidated Community Center	4,200	2,018,610	C	2	32.0	0.0	0.75	0.00	0.75	2.00	3.50	-79.53	0.069	-44.0
ACC	35	TMKH053003	Maint Prod	Pope	NC	A-10 Maintenance Facility	5,000	2,023,610	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-77.47	0.148	-44.2
11WG	2	BXUR459228	Maint Prod	Bolling	DC	CE Maintenance and Readiness Facility	3,750	2,027,360	B	2	32.5	1.0	1.00	0.00	0.00	0.00	1.00	-79.53	0.004	-45.0
AETC	22	TYMX545487	Admin	Randolph	TX	Occupational Measurement Squadron	9,800	2,037,160	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-79.69	0.090	-46.4
ACC	36	UHHZ023004	Supply	Robins	GA	Consolidated Deployment Storage Facility	4,300	2,041,460	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-81.51	0.148	-48.3
AFRC	10	KELL043011	Maint Prod	Lackland	TX	Consolidated Maintenance Facility	8,200	2,049,660	B	2	32.5	1.0	0.00	0.00	0.00	0.00	0.00	-82.11	0.038	-48.6
ACC	37	VLSB023002R1	Maint Prod	Shaw	SC	Aircraft Maintenance Unit Facility	6,900	2,056,560	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-85.55	0.148	-52.3
AETC	23	TYMX514605	Admin	Randolph	TX	AETC Regional Supply Squadron	10,000	2,066,560	A	3	31.0	0.0	0.75	0.00	0.00	0.00	0.75	-86.34	0.090	-54.6
ACC	38	AWUB025501	Ops Trng	Barksdale	LA	Integrated Operations Center	6,900	2,073,460	B	2	32.5	0.0	0.75	0.00	0.00	0.00	0.75	-89.60	0.148	-56.3
AETC	24	GJKZ80011Z	Ops Trng	Fairchild	WA	Water Survival Training School	17,000	2,090,460	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	-92.99	0.090	-58.5
ACC	39	FNWZ013006R1	Ops Trng	Dyess	TX	Fire/Crash Rescue Station	9,600	2,100,060	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-93.64	0.148	-60.6
ACC	40	GJKZ040014	Maint Prod	Fairchild	WA	Munitions AGE Maintenance Facility	6,200	2,106,260	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-97.68	0.148	-64.7
AFRC	11	ZQEL029001	Cmty Spt	Youngstown	OH	Joint Services Lodging Facility Phase 1	9,900	2,116,160	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-97.89	0.038	-65.9
ACC	41	KWRD963010	Maint Prod	Holloman	NM	Survival Equipment Shop	4,650	2,120,810	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-101.73	0.148	-68.7
ACC	42	KWRD003001	Ops Trng	Holloman	NM	Fire/Crash Rescue Station	14,400	2,135,210	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-105.77	0.148	-72.8
ACC	43	FTEV023005	Ops Trng	Eglin 9	FL	Mobility and Training Facility (823 RHS)	2,100	2,137,310	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-109.81	0.148	-76.8
ACC	44	QYZH013005R1	Supply	Mt Home	ID	Base Supply Warehouse	11,600	2,148,910	D	2	31.5	0.0	0.75	0.00	0.75	0.00	1.50	-113.85	0.148	-80.9
AFRC	12	YWHG979501	Ops Trng	Whiteman	MO	A-10 Squadron Operations	3,650	2,152,560	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-113.68	0.038	-81.2
ACC	45	HACC003002	Maint Prod	Al Udeid		Munitions Maintenance Facility	1,600	2,154,160	B	2	32.5	0.0	0.00	0.00	0.00	2.00	2.00	-117.90	0.148	-83.4

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
ACC	46	RKMF043001	Ops Trng	Nellis	NV	Nevada Training Range Initiative	15,000	2,169,160	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-121.94	0.148	-89.4
ACC	47	RKMF043002	Ops Trng	Indian Springs	NV	Security Forces MOUT Complex	8,500	2,177,660	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-125.98	0.148	-93.5
AFRC	13	FGWB019001B	Cmty Spt	Dobbins	GA	Visiting Quarters	7,000	2,184,660	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-129.47	0.038	-97.5
ACC	48	BAEY021004R1	Maint Prod	Beale	CA	Aircraft Corrosion Control Facility	16,500	2,201,160	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-130.03	0.148	-97.5
ACC	49	FTFA973013	Ops Trng	Eglin	FL	Squadron Operations Facility (58 FS)	4,900	2,206,060	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-134.07	0.148	-101.6
ACC	50	FXBM993000	Ops Trng	Ellsworth	SD	Live Ordnance Loading Area (LOLA)	12,200	2,218,260	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-138.11	0.148	-105.6
ACC	51	MUHJ013003	Ops Trng	Langley	VA	Repair Primary Parking Apron/Taxiway	11,400	2,229,660	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-142.16	0.148	-109.7
AFRC	14	AWUB979501	Maint Prod	Barksdale	LA	RED HORSE Vehicle Maintenance	3,000	2,232,660	B	2	32.5	2.0	0.00	0.00	0.50	0.00	0.50	-145.26	0.038	-110.3
ACC	52	RKMF033008	Maint Prod	Nellis	NV	Vehicle Maintenance Complex	10,800	2,243,460	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-146.20	0.148	-113.7
ACC	53	WWYK020042	Ops Trng	Tinker	OK	ADAL Squadron Operations Facility (552 ACW)	1,200	2,244,660	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	-150.24	0.148	-115.7
ACC	54	YWHG999215	Supply	Whiteman	MO	B-2 Conventional Munitions Storage	12,000	2,256,660	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-154.29	0.148	-121.8
ACC	55	HACC983001	Admin	Al Udeid		QAE/Contingency Flight Office	1,500	2,258,160	B	2	32.5	0.0	0.00	0.00	0.00	2.00	2.00	-158.33	0.148	-123.8
ACC	56	SGBP023004	Ops Trng	Offutt	NE	ADAL Information Squadron Facility (AIA)	11,800	2,269,960	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	-162.37	0.148	-127.9
AFRC	15	FJXT983001	Ops Trng	Dover	DE	Aerial Port Training Facility	1,350	2,271,310	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-161.05	0.038	-128.6
ACC	57	AWUB965110	Ops Trng	Barksdale	LA	Repair Aircraft Parking Apron	12,000	2,283,310	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-166.42	0.148	-133.9
ACC	58	FTFA983008	Ops Trng	Eglin	FL	Squadron Operations Facility (60 FS)	5,000	2,288,310	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-170.46	0.148	-138.0
ACC	59	QJVF952112	Maint Prod	Minot	ND	B-52 Maintenance Dock	13,300	2,301,610	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-174.50	0.148	-142.0
AFRC	16	TDKA959006	Ops Trng	Peterson	CO	Aerial Port/Airlift Facility	5,700	2,307,310	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-176.84	0.038	-143.8
ACC	60	QSEU013004	Maint Prod	Moody	GA	C-130 Maintenance Hangar	7,400	2,314,710	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-178.54	0.148	-146.0
ACC	61	UHHZ033003	Supply	Robins	GA	Hazardous Material Storage Facility (93 ACW)	2,000	2,316,710	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-182.59	0.148	-150.1
ACC	62	HACC023018	Supply	Al Udeid		Covered Storage	1,900	2,318,610	B	2	32.5	0.0	0.00	0.00	0.00	2.00	2.00	-186.63	0.148	-152.1
AFSOC	3	FTEV943001	Cmty Spt	Eglin 9	FL	Add to Security Force Operations Facility	1,650	2,320,260	B	2	32.5	0.0	0.50	0.00	0.00	0.00	0.50	-190.00	0.005	-157.0
ACC	63	CZQZ903011	Ops Trng	Cannon	NM	Approach Lights Runway 13	1,000	2,321,260	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-190.67	0.148	-158.2
AFRC	17	TDKA989002	Maint Prod	Peterson	CO	Fuel Systems Maintenance	8,700	2,329,960	B	2	32.5	1.0	0.00	0.00	0.75	0.00	0.75	-192.63	0.038	-158.4
ACC	64	UHHZ980301	Utils Grnds	Robins	GA	Upgrade Apron Power (93 ACW)	2,000	2,331,960	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-194.72	0.148	-162.2
ACC	65	AWUB025502	Ops Trng	Barksdale	LA	Weapons Load Crew Training Facility	19,000	2,350,960	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-198.76	0.148	-166.3
ACC	66	BAEY041008	Maint Prod	Beale	CA	Flightline Hangar Upgrade	11,000	2,361,960	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-202.80	0.148	-170.3
ACC	67	KWRD043006	Ops Trng	Holloman	NM	Taxiway/Hazardous Cargo Pad	24,000	2,385,960	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-206.85	0.148	-174.3
AFRC	18	AWUB049801	Ops Trng	Barksdale	LA	B52 Squadron Operations/AMU	5,200	2,391,160	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-208.42	0.038	-175.9
ACC	68	MUHJ903005	Ops Trng	Langley	VA	Repair West Parking Apron	13,300	2,404,460	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-210.89	0.148	-178.4
ACC	69	QJVF012002	Ops Trng	Minot	ND	Air Traffic Control Complex	9,800	2,414,260	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-214.93	0.148	-182.4
ACC	70	SGBP980902	Maint Prod	Offutt	NE	E-4B Fuel Maintenance Dock	22,000	2,436,260	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-218.98	0.148	-186.5
11WG	3	BXUR218683	Utils Grnds	Bolling	DC	Repair Fence, Main Gate	950	2,437,210	D	3	29.5	0.0	0.75	0.00	0.75	0.00	1.50	-219.07	0.004	-188.1
AFRC	19	YTPM029001	Cmty Spt	Westover	MA	Security Forces Operations	3,650	2,440,860	B	2	32.5	2.0	0.00	0.00	0.00	0.00	0.00	-224.21	0.038	-189.7
ACC	71	SGBP950902	Cmty Spt	Offutt	NE	Child Development Center	7,200	2,448,060	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-223.02	0.148	-191.0
ACC	72	QSEU953004	Cmty Spt	Moody	GA	Child Development Center	6,600	2,454,660	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-227.06	0.148	-195.1
ACC	73	BAEY041006	Cmty Spt	Beale	CA	Child Development Center	6,800	2,461,460	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-231.11	0.148	-199.1
ACC	74	MUHJ023012	Admin	Langley	VA	Force Protection Relocation of HQ Functions	27,000	2,488,460	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	-235.15	0.148	-203.9
AFRC	20	FGWB019011	Maint Prod	Dobbins	GA	Upgrade Maint Bays 2 and 3	9,500	2,497,960	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-240.00	0.038	-207.5
ACC	75	LKTC043103	Ops Trng	Indian Springs	NV	Security Forces Academics Facility	9,500	2,507,460	B	3	30.5	0.0	0.75	0.00	0.00	0.00	0.75	-239.19	0.148	-207.9
ACC	76	MUHJ023003	Cmty Spt	Langley	VA	Family Community Service Center	5,200	2,512,660	C	3	30.0	0.0	0.75	0.00	0.50	0.00	1.25	-243.23	0.148	-212.0

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative	Mission Category	Mission Impact	Matrix Points	Panel Points	Operations Efficiencies	Mission Timing	IPT Points (Demo)	(Overseas Presence)	IPT Points (Total)	PRV Weighted MAJCOM Score	% PRV	Score
ACC	77	QSEU873005A	Admin	Moody	GA	Consolidated Support Center	8,400	2,521,060	D	3	29.5	0.0	0.75	0.00	0.75	0.00	1.50	-247.28	0.148	-216.3
ACC	78	LKTC043102	Cmty Spt	Indian Springs	NV	AEF Student Billeting/Dining Hall	21,900	2,542,960	B	3	30.5	0.0	0.00	0.00	0.00	0.00	0.00	-251.32	0.148	-220.8
AFRC	21	HTUX969003	Ops Trng	Gen Mitch	WI	Add/Alter Consolidated Training	5,300	2,548,260	B	2	32.5	0.0	0.00	0.00	0.00	0.00	0.00	-255.79	0.038	-223.3
ACC	79	VLSB953019R1	Cmty Spt	Shaw	SC	Base Library	4,400	2,552,660	C	3	30.0	0.0	0.00	0.00	0.50	0.00	0.50	-255.36	0.148	-224.9
ACC	80	VKAG963011	Admin	Seymour Johnson	NC	Consolidated Support Center	10,400	2,563,060	D	3	29.5	0.0	0.75	0.00	0.00	0.00	0.75	-259.41	0.148	-229.2
ACC	81	MQNA053002	Cmty Spt	Lajes Field	PO	ADAL Fitness Center	3,300	2,566,360	C	3	30.0	0.0	0.00	0.00	0.00	0.00	0.00	-263.45	0.148	-233.5
ACC	82	YWHG999216	Utils Grnds	Whiteman	MO	North Land Acquisition	3,200	2,569,560	D	3	29.5	0.0	0.00	0.00	0.00	0.00	0.00	-267.49	0.148	-238.0
AFRC	22	FTFA973002	Ops Trng	Eglin	FL	Civil Engineer Training Facility	3,400	2,572,960	B	2	32.5	0.0	0.00	0.00	0.50	0.00	0.50	-271.58	0.038	-238.6
ACC	83	YWHG011004	Utils Grnds	Whiteman	MO	South Land Acquisition	2,200	2,575,160	D	3	29.5	0.0	0.00	0.00	0.00	0.00	0.00	-271.54	0.148	-242.0
AFRC	23	PTFL999003	Ops Trng	McGuire	NJ	Civil Engineer Training Facility	3,650	2,578,810	B	2	32.5	0.0	0.00	0.00	0.75	0.00	0.75	-287.37	0.038	-254.1
AFRC	24	RVKQ009011	Cmty Spt	Niagara	NY	Visiting Quarters Phase 1	8,600	2,587,410	C	2	32.0	0.0	0.00	0.00	0.00	0.00	0.00	-303.16	0.038	-271.2

Appendix I – Proposed Model Results

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
AFMC	9	FSPM003501	Ops Trng	Edwards	CA	Replace Information Technology Operations Center	14,200	14,200	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00
AFMC	1	KRSM003013	Supply	Hill	UT	Replace Munitions Storage Igloos	13,000	27,200	0.00	1.00	0.70	0.00	0.00	0.00	0.80	1.00	1.00
AFRC	1	MAHG043005	Maint Prod	Keesler	MS	Fuel Systems Maintenance Hangar	7,200	34,400	1.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00
USAFE	2	VYHK023001	Strat Mob	Spangdahlem	GE	Passenger Terminal	1,400	35,800	1.00	1.00	0.00	1.00	0.00	1.00	0.00	0.00	1.00
ACC	2	KRSM033001	Maint Prod	Hill	UT	729th ACS Operations/Maintenance Complex	4,350	40,150	1.00	1.00	0.00	0.00	0.00	0.80	0.00	1.00	1.00
ANG	1	TWLR949661	Maint Prod	Quonset State	RI	Replace Composite Aircraft Maintenance Complex	18,500	58,650	1.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	1.00
AETC	7	VNVP043002	Ops Trng	Sheppard	TX	Consolidated Airfield Ops Complex	11,400	70,050	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSOC	1	FTEV013019	Ops Trng	Eglin 9	FL	Special Tactics Advance Skills Trng Facility	7,800	77,850	0.00	0.00	1.00	0.00	1.00	0.00	1.00	0.00	1.00
PACAF	2	SMYU013100	Ops Trng	Osan	KO	Add/Alter Sq Ops/AMU Facility	17,000	94,850	1.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	6	FSPM963504	RDTE	Edwards	CA	Replace Engineering Technical Facility	20,000	114,850	0.00	1.00	1.00	0.00	0.00	0.00	0.80	1.00	0.00
AETC	23	TYMX514605	Admin	Randolph	TX	AETC Regional Supply Squadron	10,000	124,850	1.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	2	ACJP980011	Supply	Los Angeles	CA	Logistics Operations Resource Center	12,800	137,650	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	3	SXHT973002C	Cmty Spt	Patrick	FL	Security Forces Operations Facility	8,400	146,050	0.00	1.00	1.00	0.00	0.00	0.00	0.80	1.00	0.00
AMC	11	NVZR053707	Ops Trng	MacDill	FL	Air Traffic Control Fac/Crash Fire Station	14,000	160,050	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	6	XUMU033002	Cmty Spt	Vandenberg	CA	Base Education Center	14,800	174,850	0.00	1.00	0.70	0.00	0.00	0.00	0.80	1.00	0.00
ACC	5	MQNA033005	Maint Prod	Lajes Field	PO	Repair Aircraft Maintenance Hangar	14,800	189,650	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
11WG	1	BXUR050003	Cmty Spt	Bolling	DC	Fitness Center	13,600	203,250	0.00	1.00	0.00	1.00	0.00	0.00	0.80	0.00	0.00
AMC	1	PQWY973000	Admin	McChord	WA	Mission Support Center, Ph 2	19,000	222,250	0.00	1.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
AETC	15	NUEX993002	Admin	Luke	AZ	Replace Contracting Center	1,900	224,150	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AMC	8	PTFL003008	Admin	McGuire	NJ	Consolidated Air Mobility Sq Fac (3Ea)	17,000	241,150	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
ACC	4	MUHJ023010	Ops Trng	Langley	VA	Operations Support Center	24,000	265,150	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	11	ZQEL029001	Cmty Spt	Youngstown	OH	Joint Services Lodging Facility Phase 1	9,900	275,050	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
PACAF	5	FTQW033003	Maint Prod	Eielson	AK	Repl/Consolid Munitions Surveil & Inspect Shop	4,700	279,750	0.00	1.00	1.00	0.00	0.00	0.00	0.30	1.00	0.00
AETC	12	VNVP033005	Ops Trng	Sheppard	TX	Replace Trainer Maint/ Development Fac	17,500	297,250	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
ANG	6	JLWS989009	Ops Trng	New Castle	DE	Replace C-130 Parking Apron and Taxiway	10,800	308,050	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	13	MHMV043091	RDTE	Kirtland	NM	Replace High Power Gas Laser Lab Complex	8,400	316,450	0.00	0.00	0.70	0.00	0.00	0.00	0.80	1.00	0.00
AETC	11	JCGU033000	Admin	Goodfellow	TX	Consolidate Wing Support Complex	10,600	327,050	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	19	YTPM029001	Cmty Spt	Westover	MA	Security Forces Operations	3,650	330,700	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AMC	5	VDYD943015	Ops Trng	Scott	IL	Squadron Operations Facility	12,800	343,500	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
ACC	44	QYZH013005R1	Supply	Mt Home	ID	Base Supply Warehouse	11,600	355,100	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AETC	6	PNQS983126	Ops Trng	Maxwell	AL	ADAL AU Library	13,000	368,100	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	15	MSET963014	Ops Trng	Lakenheath	UK	F-15C Sqd Ops/AMU (493rd FS)	10,350	378,450	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
ACC	9	FXBM003002	Ops Trng	Ellsworth	SD	Base Operations Facility	10,000	388,450	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	40	GJKZ040014	Maint Prod	Fairchild	WA	Munitions AGE Maintenance Facility	6,200	394,650	0.00	0.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
AMC	2	FJXT033002	Ops Trng	Dover	DE	Air Traffic Control Facility	7,500	402,150	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	38	AWUB025501	Ops Trng	Barksdale	LA	Integrated Operations Center	6,900	409,050	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ANG	8	GUQE989000	Ops Trng	Forbes Field	KS	Replace Operations and Training Complex	19,000	428,050	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AMC	14	JFSD200163P2	Ops Trng	Grand Forks	ND	Repair Drainage C-Ramp	5,700	433,750	0.00	0.00	0.00	0.00	1.00	0.00	0.80	0.00	0.00
ANG	3	XDQU919578	Cmty Spt	Savannah IAP	GA	Replace Troop Quarters and Dining Hall Complex	29,000	462,750	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AETC	4	NUEX993001	Ops Trng	Luke	AZ	Consolidate Communications Ops Center	12,200	474,950	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
USAFA	1	XQPZ950111	Ops Trng	USAFA	CO	Upgrade Academic Facility, Phase 4	23,000	497,950	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	57	AWUB965110	Ops Trng	Barksdale	LA	Repair Aircraft Parking Apron	12,000	509,950	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFMC	3	CNBC073001	RDTE	Brooks	TX	Tri-Service Research Facility	23,000	532,950	0.00	1.00	1.00	1.00	0.00	0.00	0.80	1.00	0.00
ACC	20	SGBP990903	Ops Trng	Offutt	NE	Fire/Crash Rescue Station	11,000	543,950	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFMC	26	FSPM043502	Ops Trng	Edwards	CA	Replace Base Operations Facility	6,800	550,750	0.00	0.00	0.70	0.00	0.00	0.00	1.00	1.00	0.00
PACAF	11	FXSB023014	Ops Trng	Elmendorf	AK	Repair Runway/Taxiway Pavement	7,300	558,050	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	70	SGBP980902	Maint Prod	Offutt	NE	E-4B Fuel Maintenance Dock	22,000	580,050	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFMC	24	UHHZ003012	Maint Prod	Robins	GA	Consolidated Aircraft Maintenance Facility	7,800	587,850	0.00	1.00	0.70	0.00	0.00	0.00	1.00	1.00	0.00
ACC	35	TMKH053003	Maint Prod	Pope	NC	A-10 Maintenance Facility	5,000	592,850	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
AFMC	9	FSPM003501	Ops Trng	Edwards	CA	Replace Information Technology Operations Center	0.03	0.50	0.00	1.00	0.00	0.53	1.00	1.00	0.80	0.5471
AFMC	1	KRSM003013	Supply	Hill	UT	Replace Munitions Storage Igloos	1.00	1.00	0.00	1.00	0.00	0.79	1.00	0.00	1.00	0.5032
AFRC	1	MAHG043005	Maint Prod	Keesler	MS	Fuel Systems Maintenance Hangar	1.00	1.00	0.00	1.00	0.00	0.37	0.00	0.00	1.00	0.4767
USAFE	2	VYHK023001	Strat Mob	Spangdahlem	GE	Passenger Terminal	1.00	1.00	0.00	0.00	1.00	0.69	0.00	0.00	0.50	0.4598
ACC	2	KRSM033001	Maint Prod	Hill	UT	729th ACS Operations/Maintenance Complex	0.33	0.50	0.00	0.00	0.00	0.52	1.00	1.00	1.00	0.4593
ANG	1	TWLR949661	Maint Prod	Quonset State	RI	Replace Composite Aircraft Maintenance Complex	0.50	1.00	0.00	1.00	0.00	0.90	0.00	0.00	0.00	0.4465
AETC	7	VNVP043002	Ops Trng	Sheppard	TX	Consolidated Airfield Ops Complex	0.07	1.00	0.00	1.00	0.00	0.70	0.00	0.00	1.00	0.4372
AFSOC	1	FTEV013019	Ops Trng	Eglin 9	FL	Special Tactics Advance Skills Trng Facility	1.00	1.00	0.00	1.00	0.00	0.30	0.00	0.00	0.80	0.4305
PACAF	2	SMYU013100	Ops Trng	Osan	KO	Add/Alter Sq Ops/AMU Facility	0.14	1.00	0.00	1.00	0.00	0.29	0.00	0.00	1.00	0.4276
AFMC	6	FSPM963504	RDTE	Edwards	CA	Replace Engineering Technical Facility	0.20	1.00	0.00	0.00	0.00	0.54	1.00	1.00	0.80	0.4270
AETC	23	TYMX514605	Admin	Randolph	TX	AETC Regional Supply Squadron	0.05	0.33	0.00	0.00	0.00	0.94	0.00	1.00	0.80	0.4263
AFSPC	2	ACJP980011	Supply	Los Angeles	CA	Logistics Operations Resource Center	0.50	1.00	0.00	0.00	1.00	0.70	1.00	0.00	0.80	0.4252
AFSPC	3	SXHT973002C	Cmty Spt	Patrick	FL	Security Forces Operations Facility	0.14	1.00	0.00	0.00	0.00	0.61	1.00	1.00	0.30	0.4232
AMC	11	NVZR053707	Ops Trng	MacDill	FL	Air Traffic Control Fac/Crash Fire Station	0.03	1.00	0.00	1.00	0.00	0.43	1.00	0.00	0.80	0.4206
AFSPC	6	XUMU033002	Cmty Spt	Vandenberg	CA	Base Education Center	0.03	1.00	0.00	0.00	0.00	0.64	1.00	1.00	0.50	0.4202
ACC	5	MQNA033005	Maint Prod	Lajes Field	PO	Repair Aircraft Maintenance Hangar	0.08	1.00	0.00	1.00	0.00	0.67	1.00	0.00	0.00	0.4157
11WG	1	BXUR050003	Cmty Spt	Bolling	DC	Fitness Center	0.25	1.00	0.00	0.00	0.00	0.94	0.00	1.00	0.30	0.4140
AMC	1	PQWY973000	Admin	McChord	WA	Mission Support Center, Ph 2	1.00	1.00	0.00	0.00	0.00	0.84	0.00	1.00	0.50	0.4115
AETC	15	NUEX993002	Admin	Luke	AZ	Replace Contracting Center	0.05	0.50	0.00	0.00	0.00	0.61	1.00	1.00	0.80	0.4113
AMC	8	PTFL003008	Admin	McGuire	NJ	Consolidated Air Mobility Sq Fac (3Ea)	0.13	0.33	0.00	0.00	0.00	0.58	1.00	1.00	0.80	0.4097
ACC	4	MUHJ023010	Ops Trng	Langley	VA	Operations Support Center	0.11	1.00	0.00	1.00	0.00	0.70	0.00	0.00	1.00	0.4071
AFRC	11	ZQEL029001	Cmty Spt	Youngstown	OH	Joint Services Lodging Facility Phase 1	0.07	1.00	0.00	0.00	0.00	0.72	1.00	1.00	0.50	0.4067
PACAF	5	FTQW033003	Maint Prod	Eielson	AK	Repl/Consolid Munitions Surveil & Inspect Shop	0.08	1.00	0.00	1.00	0.00	0.66	1.00	0.00	0.50	0.4027
AETC	12	VNVP033005	Ops Trng	Sheppard	TX	Replace Trainer Maint/ Development Fac	0.03	0.50	0.00	0.00	0.00	0.50	1.00	1.00	1.00	0.4021
ANG	6	JLWS989009	Ops Trng	New Castle	DE	Replace C-130 Parking Apron and Taxiway	0.08	1.00	0.00	1.00	0.00	0.60	0.00	0.00	0.00	0.4004
AFMC	13	MHMV043091	RDTE	Kirtland	NM	Replace High Power Gas Laser Lab Complex	0.50	1.00	0.00	0.00	0.00	0.47	1.00	1.00	0.80	0.3981
AETC	11	JCGU033000	Admin	Goodfellow	TX	Consolidate Wing Support Complex	0.06	1.00	0.00	0.00	0.00	0.81	0.00	1.00	0.30	0.3979
AFRC	19	YTPM029001	Cmty Spt	Westover	MA	Security Forces Operations	0.04	0.50	0.00	0.00	0.00	0.90	1.00	1.00	0.00	0.3965
AMC	5	VDYD943015	Ops Trng	Scott	IL	Squadron Operations Facility	0.09	1.00	0.00	1.00	0.00	0.62	0.00	0.00	1.00	0.3957
ACC	44	QYZH013005R1	Supply	Mt Home	ID	Base Supply Warehouse	0.14	0.33	0.00	0.00	0.00	0.44	1.00	1.00	0.50	0.3943
AETC	6	PNQS983126	Ops Trng	Maxwell	AL	ADAL AU Library	0.04	0.33	0.00	1.00	0.00	0.75	1.00	0.00	0.80	0.3940
USAFE	15	MSET963014	Ops Trng	Lakenheath	UK	F-15C Sqd Ops/AMU (493rd FS)	0.02	0.33	0.00	1.00	0.00	0.50	1.00	0.00	0.50	0.3936
ACC	9	FXBM003002	Ops Trng	Ellsworth	SD	Base Operations Facility	0.03	1.00	0.00	1.00	0.00	0.19	1.00	0.00	0.50	0.3921
ACC	40	GJKZ040014	Maint Prod	Fairchild	WA	Munitions AGE Maintenance Facility	0.02	0.33	0.00	1.00	0.00	0.61	1.00	0.00	0.50	0.3910
AMC	2	FJXT033002	Ops Trng	Dover	DE	Air Traffic Control Facility	0.25	1.00	0.00	1.00	0.00	0.57	0.00	0.00	0.50	0.3905
ACC	38	AWUB025501	Ops Trng	Barksdale	LA	Integrated Operations Center	0.01	0.33	0.00	1.00	0.00	1.00	0.00	0.00	0.80	0.3883
ANG	8	GUQE989000	Ops Trng	Forbes Field	KS	Replace Operations and Training Complex	0.04	1.00	0.00	0.00	0.00	0.70	0.00	1.00	0.00	0.3861
AMC	14	JFSD200163P2	Ops Trng	Grand Forks	ND	Repair Drainage C-Ramp	0.02	1.00	0.00	1.00	0.00	0.67	0.00	0.00	0.30	0.3853
ANG	3	XDQU919578	Cmty Spt	Savannah IAP	GA	Replace Troop Quarters and Dining Hall Complex	0.50	1.00	0.00	0.00	0.00	0.69	0.00	1.00	0.00	0.3843
AETC	4	NUEX993001	Ops Trng	Luke	AZ	Consolidate Communications Ops Center	0.05	1.00	0.00	0.00	0.00	0.71	0.00	1.00	0.80	0.3836
USAFA	1	XQPZ950111	Ops Trng	USAFA	CO	Upgrade Academic Facility, Phase 4	0.05	1.00	0.00	1.00	0.00	0.31	1.00	0.00	0.80	0.3836
ACC	57	AWUB965110	Ops Trng	Barksdale	LA	Repair Aircraft Parking Apron	0.01	0.25	0.00	1.00	0.00	0.69	1.00	0.00	0.80	0.3826
AFMC	3	CNBC073001	RDTE	Brooks	TX	Tri-Service Research Facility	0.33	1.00	0.00	0.00	0.00	0.37	0.00	1.00	0.30	0.3823
ACC	20	SGBP990903	Ops Trng	Offutt	NE	Fire/Crash Rescue Station	0.02	1.00	0.00	0.00	0.00	0.94	0.00	1.00	0.80	0.3813
AFMC	26	FSPM043502	Ops Trng	Edwards	CA	Replace Base Operations Facility	0.01	0.25	0.00	1.00	0.00	0.69	0.00	0.00	0.80	0.3805
PACAF	11	FXSB023014	Ops Trng	Elmendorf	AK	Repair Runway/Taxiway Pavement	0.03	1.00	0.00	1.00	0.00	0.81	0.00	0.00	1.00	0.3797
ACC	70	SGBP980902	Maint Prod	Offutt	NE	E-4B Fuel Maintenance Dock	0.02	0.33	0.00	1.00	0.00	0.63	1.00	0.00	0.80	0.3786
AFMC	24	UHHZ003012	Maint Prod	Robins	GA	Consolidated Aircraft Maintenance Facility	0.03	0.33	0.00	1.00	0.00	0.47	0.00	0.00	1.00	0.3780
ACC	35	TMKH053003	Maint Prod	Pope	NC	A-10 Maintenance Facility	0.02	0.20	0.00	1.00	0.00	0.84	0.00	0.00	0.50	0.3777

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
PACAF	1	MLWR013144	Ops Trng	Kunsan	KO	Upgrade Hardened Aircraft Shelters	7,000	599,850	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ANG	5	PDPG019050	Maint Prod	March	CA	Replace Aircraft Maintenance Hangar and Shops	19,500	619,350	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	9	ACJP023028	Admin	Los Angeles	CA	SMC Headquarters Facility	32,000	651,350	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	1.00
ACC	51	MUHJ013003	Ops Trng	Langley	VA	Repair Primary Parking Apron/Taxiway	11,400	662,750	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	74	MUHJ023012	Admin	Langley	VA	Force Protection Relocation of HQ Functions	27,000	689,750	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AETC	19	TYMX973002	Ops Trng	Randolph	TX	ADAL Airfield Pavements and Taxiway	10,800	700,550	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
USAFE	6	VYHK003102	Maint Prod	Spangdahlem	GE	CE Pavements & Equipment Compound	9,800	710,350	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	68	MUHJ903005	Ops Trng	Langley	VA	Repair West Parking Apron	13,300	723,650	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ANG	10	YZEU009047	Maint Prod	Will Rogers	OK	Replace Composite Aircraft Maintenance Complex	23,000	746,650	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AETC	8	MAHG043001	Cmty Spt	Keesler	MS	Replace Fire/Crash Rescue Station	9,200	755,850	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	4	ANZY033002	RDTE	Arnold	TN	Improve Propulsion Altitude Capability	32,000	787,850	0.00	0.00	0.00	0.00	1.00	0.00	0.80	1.00	0.00
AMC	6	DKFX913001	Maint Prod	Charleston	SC	Civil Engineer/Contracting Complex	18,500	806,350	0.00	1.00	1.00	1.00	0.00	0.00	0.30	0.00	0.00
ACC	16	FNWZ993003R2	Ops Trng	Dyess	TX	B-1B Squadron Operations/AMU Facility	12,400	818,750	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
AMC	10	PRQE045002R1	Maint Prod	McConnell	KS	Corrosion Control Facility	19,000	837,750	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	56	SGBP023004	Ops Trng	Offutt	NE	ADAL Information Squadron Facility (AIA)	11,800	849,550	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AETC	22	TYMX545487	Admin	Randolph	TX	Occupational Measurement Squadron	9,800	859,350	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	1	FTEV993029	Ops Trng	Eglin 9	FL	AFC2TIG Systems/Warrior School Complex	16,300	875,650	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
USAFE	4	TYFR033044	Maint Prod	Ramstein	GE	CES Midfield Complex	6,900	882,550	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	11	ASHE043000	Ops Trng	Aviano	IT	Base Operations	2,950	885,500	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	4	QJKL990011P4	Cmty Spt	Minn-St P	MN	Consolidated Lodging Phase 4	6,450	891,950	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
ANG	11	PSTE009070	Ops Trng	McEntire AGS	SC	Replace Operations and Training Complex	8,600	900,550	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	21	UHHZ003014	Maint Prod	Robins	GA	Corrosion Control Depaint Facility	24,000	924,550	0.00	0.00	0.00	0.00	0.00	0.00	1.00	1.00	0.00
ACC	27	FNWZ993004	Maint Prod	Dyess	TX	Refueling Vehicle Maintenance Shop	1,800	926,350	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
AMC	13	TMKH023003	Maint Prod	Pope	NC	AGE Facility	6,400	932,750	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AMC	4	AJXF043001	Admin	Andrews	MD	Upgrade Wing Headquarters, Phase 1	9,700	942,450	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	50	FXBM993000	Ops Trng	Ellsworth	SD	Live Ordnance Loading Area (LOLA)	12,200	954,650	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AETC	1	PNQS033137	Cmty Spt	Maxwell	AL	SOS Dormitory, Phase 3	13,400	968,050	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
PACAF	18	FXSB023001	Maint Prod	Elmendorf	AK	Convert Facility to Consolid Avionics Shop	6,300	974,350	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	10	KELL043011	Maint Prod	Lackland	TX	Consolidated Maintenance Facility	8,200	982,550	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	15	FTFA013018	RDTE	Eglin	FL	Consolidated Test and Evaluation Operations Facility	13,400	995,950	0.00	0.00	0.70	1.00	1.00	0.00	0.30	1.00	0.00
PACAF	17	SMYU003420	Maint Prod	Osan	KO	Replace Aircraft Fuel Systems Maintenance Hangar	7,500	1,003,450	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AMC	17	VDYD031900	Admin	Scott	IL	ADAL USTRANSCOM Facility	29,000	1,032,450	0.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	23	UHHZ983006R1	Maint Prod	Robins	GA	54th Combat Communication Squad Ops Facility	7,200	1,039,650	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	14	GHLN053003	Cmty Spt	FE Warren	WY	Learning Center and Library	8,300	1,047,950	0.00	0.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
ANG	7	PTFL899638	Maint Prod	McGuire	NJ	Replace Aircraft Maintenance Hangar and Shops	23,000	1,070,950	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	76	MUHJ023003	Cmty Spt	Langley	VA	Family Community Service Center	5,200	1,076,150	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
ACC	17	MPLS043001	Ops Trng	Lackland	TX	Information Operations Center (AIA)	8,800	1,084,950	1.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
PACAF	3	KNMD053001	Admin	Hickam	HI	Operationalize HQ PACAF Building, Ph 1 of 2	23,000	1,107,950	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	20	FGWB019011	Maint Prod	Dobbins	GA	Upgrade Maint Bays 2 and 3	9,500	1,117,450	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ANG	4	SPBN029135	Ops Trng	Otis ANGB	MA	Replace Fire Crash/Rescue Station and Control Tower	16,500	1,133,950	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	7	TYFR0530402	Admin	Ramstein	GE	Contingency Response Group Ph 2	18,900	1,152,850	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	7	CZQZ983002	Cmty Spt	Cannon	NM	Security Forces Operations Facility	3,750	1,156,600	0.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	18	AWUB049801	Ops Trng	Barksdale	LA	B52 Squadron Operations/AMU	5,200	1,161,800	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	23	PTFL999003	Ops Trng	McGuire	NJ	Civil Engineer Training Facility	3,650	1,165,450	0.00	0.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	1	TYFR0230462	Ops Trng	Ramstein	GE	Consolidated 1st Combat Communication Squadron Complex, Ph 2	17,850	1,183,300	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	77	QSEU873005A	Admin	Moody	GA	Consolidated Support Center	8,400	1,191,700	0.00	1.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	19	QJVF992001	Ops Trng	Minot	ND	Aircraft Parking Apron	19,000	1,210,700	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AMC	9	XDAT973250R1	Ops Trng	Travis	CA	C-5 Squad Ops/AMU	9,600	1,220,300	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	26	WWYK003006C	Maint Prod	Tinker	OK	31st Combat Communication Squad Ops Facility	9,800	1,230,100	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
PACAF	1	MLWR013144	Ops Trng	Kunsan	KO	Upgrade Hardened Aircraft Shelters	0.50	1.00	0.00	1.00	0.00	0.42	1.00	0.00	0.30	0.3775
ANG	5	PDPG019050	Maint Prod	March	CA	Replace Aircraft Maintenance Hangar and Shops	0.20	1.00	0.00	1.00	0.00	0.64	0.00	0.00	0.00	0.3772
AFSPC	9	ACJP023028	Admin	Los Angeles	CA	SMC Headquarters Facility	0.11	0.50	0.00	0.00	0.00	0.64	0.00	1.00	0.80	0.3768
ACC	51	MUHJ013003	Ops Trng	Langley	VA	Repair Primary Parking Apron/Taxiway	0.01	0.50	0.00	1.00	0.00	0.77	0.00	0.00	1.00	0.3762
ACC	74	MUHJ023012	Admin	Langley	VA	Force Protection Relocation of HQ Functions	0.04	0.25	1.00	0.00	0.00	0.90	0.00	1.00	1.00	0.3760
AETC	19	TYMX973002	Ops Trng	Randolph	TX	ADAL Airfield Pavements and Taxiway	0.01	1.00	0.00	1.00	0.00	0.84	1.00	0.00	0.80	0.3755
USAFE	6	VYHK003102	Maint Prod	Spangdahlem	GE	CE Pavements & Equipment Compound	0.06	0.50	0.00	0.00	0.00	0.47	1.00	1.00	0.50	0.3715
ACC	68	MUHJ903005	Ops Trng	Langley	VA	Repair West Parking Apron	0.01	0.33	0.00	1.00	0.00	0.77	0.00	0.00	1.00	0.3694
ANG	10	YZEU009047	Maint Prod	Will Rogers	OK	Replace Composite Aircraft Maintenance Complex	0.14	1.00	0.00	1.00	0.00	0.40	0.00	0.00	0.00	0.3678
AETC	8	MAHG043001	Cmty Spt	Keesler	MS	Replace Fire/Crash Rescue Station	0.09	0.50	0.00	0.00	0.00	0.63	0.00	1.00	1.00	0.3657
AFMC	4	ANZY033002	RDTE	Arnold	TN	Improve Propulsion Altitude Capability	0.25	1.00	0.00	0.00	0.00	0.63	0.00	1.00	0.30	0.3652
AMC	6	DKFX913001	Maint Prod	Charleston	SC	Civil Engineer/Contracting Complex	0.07	1.00	0.00	0.00	0.00	0.31	1.00	1.00	0.50	0.3652
ACC	16	FNWZ993003R2	Ops Trng	Dyess	TX	B-1B Squadron Operations/AMU Facility	0.02	1.00	0.00	1.00	0.00	0.48	0.00	0.00	0.50	0.3651
AMC	10	PRQE045002R1	Maint Prod	McConnell	KS	Corrosion Control Facility	0.05	1.00	0.00	1.00	0.00	0.22	1.00	0.00	0.30	0.3649
ACC	56	SGBP023004	Ops Trng	Offutt	NE	ADAL Information Squadron Facility (AIA)	0.01	0.50	0.00	1.00	0.00	0.89	0.00	0.00	0.80	0.3648
AETC	22	TYMX545487	Admin	Randolph	TX	Occupational Measurement Squadron	0.07	0.50	0.00	0.00	0.00	0.94	0.00	1.00	0.80	0.3616
ACC	1	FTEV993029	Ops Trng	Eglin 9	FL	AFC2TIG Systems/Warrior School Complex	0.06	0.50	0.00	1.00	0.00	0.37	0.00	0.00	0.80	0.3612
USAFE	4	TYFR033044	Maint Prod	Ramstein	GE	CES Midfield Complex	0.09	0.50	0.00	0.00	0.00	0.72	0.00	1.00	1.00	0.3610
USAFE	11	ASHE043000	Ops Trng	Aviano	IT	Base Operations	0.01	1.00	0.00	1.00	0.00	0.44	0.00	0.00	0.50	0.3606
AFRC	4	QJKL990011P4	Cmty Spt	Minn-St P	MN	Consolidated Lodging Phase 4	0.13	1.00	0.00	0.00	0.00	0.60	0.00	1.00	0.00	0.3580
ANG	11	PSTE009070	Ops Trng	McEntire AGS	SC	Replace Operations and Training Complex	0.03	1.00	0.00	0.00	0.00	0.55	0.00	1.00	0.00	0.3578
AFMC	21	UHHZ003014	Maint Prod	Robins	GA	Corrosion Control Depaint Facility	0.13	1.00	0.00	1.00	0.00	0.38	0.00	0.00	1.00	0.3575
ACC	27	FNWZ993004	Maint Prod	Dyess	TX	Refueling Vehicle Maintenance Shop	0.03	0.50	0.00	0.00	0.00	0.67	0.00	1.00	0.50	0.3571
AMC	13	TMKH023003	Maint Prod	Pope	NC	AGE Facility	0.02	1.00	0.00	1.00	0.00	0.24	0.00	0.00	0.50	0.3566
AMC	4	AJXF043001	Admin	Andrews	MD	Upgrade Wing Headquarters, Phase 1	0.33	1.00	0.00	0.00	0.00	0.64	0.00	1.00	0.80	0.3553
ACC	50	FXBM993000	Ops Trng	Ellsworth	SD	Live Ordnance Loading Area (LOLA)	0.01	0.33	0.00	1.00	0.00	0.49	1.00	0.00	0.50	0.3543
AETC	1	PNQS033137	Cmty Spt	Maxwell	AL	SOS Dormitory, Phase 3	1.00	1.00	0.00	0.00	0.00	0.51	0.00	1.00	0.80	0.3533
PACAF	18	FXSB023001	Maint Prod	Elmendorf	AK	Convert Facility to Consolid Avionics Shop	0.03	0.50	0.00	1.00	0.00	0.45	0.00	0.00	1.00	0.3531
AFRC	10	KELL043011	Maint Prod	Lackland	TX	Consolidated Maintenance Facility	0.05	0.50	0.00	1.00	0.00	0.58	0.00	0.00	1.00	0.3530
AFMC	15	FTFA013018	RDTE	Eglin	FL	Consolidated Test and Evaluation Operations Facility	0.13	0.50	0.00	0.00	0.00	0.53	0.00	1.00	1.00	0.3529
PACAF	17	SMYU003420	Maint Prod	Osan	KO	Replace Aircraft Fuel Systems Maintenance Hangar	0.03	0.33	0.00	1.00	0.00	0.61	0.00	0.00	1.00	0.3503
AMC	17	VDYD031900	Admin	Scott	IL	ADAL USTRANSCOM Facility	0.08	0.50	0.00	0.00	0.00	0.56	1.00	1.00	1.00	0.3489
ACC	23	UHHZ983006R1	Maint Prod	Robins	GA	54th Combat Communication Squad Ops Facility	0.03	0.50	0.00	1.00	0.00	0.39	0.00	0.00	1.00	0.3462
AFSPC	14	GHLN053003	Cmty Spt	FE Warren	WY	Learning Center and Library	0.03	0.50	0.00	0.00	0.00	0.76	0.00	1.00	0.50	0.3460
ANG	7	PTFL899638	Maint Prod	McGuire	NJ	Replace Aircraft Maintenance Hangar and Shops	0.17	0.50	0.00	1.00	0.00	0.34	0.00	0.00	0.80	0.3458
ACC	76	MUHJ023003	Cmty Spt	Langley	VA	Family Community Service Center	0.03	0.20	0.00	0.00	0.00	0.52	0.00	1.00	1.00	0.3456
ACC	17	MPLS043001	Ops Trng	Lackland	TX	Information Operations Center (AIA)	0.02	0.25	0.00	1.00	0.00	0.48	0.00	0.00	1.00	0.3455
PACAF	3	KNMD053001	Admin	Hickam	HI	Operationalize HQ PACAF Building, Ph 1 of 2	0.50	0.50	0.00	0.00	0.00	0.93	0.00	1.00	0.50	0.3454
AFRC	20	FGWB019011	Maint Prod	Dobbins	GA	Upgrade Maint Bays 2 and 3	0.03	0.50	0.00	1.00	0.00	0.87	0.00	0.00	0.00	0.3425
ANG	4	SPBN029135	Ops Trng	Otis ANGB	MA	Replace Fire Crash/Rescue Station and Control Tower	0.10	1.00	0.00	0.00	0.00	0.60	0.00	1.00	0.00	0.3424
USAFE	7	TYFR0530402	Admin	Ramstein	GE	Contingency Response Group Ph 2	0.20	0.25	0.00	1.00	0.00	0.61	1.00	0.00	1.00	0.3416
ACC	7	CZQZ983002	Cmty Spt	Cannon	NM	Security Forces Operations Facility	0.10	1.00	0.00	0.00	0.00	0.87	0.00	1.00	0.50	0.3413
AFRC	18	AWUB049801	Ops Trng	Barksdale	LA	B52 Squadron Operations/AMU	0.02	0.50	0.00	1.00	0.00	0.70	0.00	0.00	0.80	0.3400
AFRC	23	PTFL999003	Ops Trng	McGuire	NJ	Civil Engineer Training Facility	0.02	0.17	0.00	1.00	0.00	0.55	0.00	0.00	0.80	0.3389
USAFE	1	TYFR0230462	Ops Trng	Ramstein	GE	Consolidated 1st Combat Communication Squadron Complex, Ph 2	0.33	1.00	0.00	0.00	0.00	0.51	0.00	1.00	1.00	0.3380
ACC	77	QSEU873005A	Admin	Moody	GA	Consolidated Support Center	0.04	0.25	0.00	0.00	0.00	0.46	0.00	1.00	0.50	0.3378
ACC	19	QJVF992001	Ops Trng	Minot	ND	Aircraft Parking Apron	0.02	0.33	0.00	1.00	0.00	0.64	0.00	0.00	0.50	0.3360
AMC	9	XDAT973250R1	Ops Trng	Travis	CA	C-5 Squad Ops/AMU	0.03	0.50	0.00	1.00	0.00	0.53	0.00	0.00	0.80	0.3360
ACC	26	WWYK003006C	Maint Prod	Tinker	OK	31st Combat Communication Squad Ops Facility	0.03	0.33	0.00	1.00	0.00	0.36	0.00	0.00	1.00	0.3353

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
AMC	12	GJKZ902509Z	Maint Prod	Fairchild	WA	Civil Engineering Complex	22,000	1,252,100	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	17	CRWU073008	Ops Trng	Buckley	CO	Consolidate Fuel Center	6,000	1,258,100	0.00	1.00	0.70	1.00	0.00	0.00	0.30	0.00	1.00
AFMC	16	ANZY993003	Maint Prod	Arnold	TN	Consolidated Civil Engineering Complex	16,000	1,274,100	0.00	1.00	1.00	0.00	0.00	0.00	1.00	1.00	0.00
ACC	30	UHHZ993009	Maint Prod	Robins	GA	51st Combat Communication Squad Ops Facility	4,500	1,278,600	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
PACAF	6	SMYU993035	Maint Prod	Osan	KO	Replace PMEL Facility	3,800	1,282,400	0.00	0.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
ACC	3	QYZH577997	Maint Prod	Mt Home	ID	Operations/Maintenance Complex (726th ACS)	8,200	1,290,600	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00	1.00
AETC	10	PNQS053140	Cmty Spt	Maxwell	AL	SOC Lodging Facility, Phase IV	12,800	1,303,400	0.00	0.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AETC	13	MPYJ973249	Cmty Spt	Lackland	TX	Replace Training Annex Fitness Center	5,300	1,308,700	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	13	FGWB019001B	Cmty Spt	Dobbins	GA	Visiting Quarters	7,000	1,315,700	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	21	SXHT013001	Ops Trng	Patrick	FL	Fire Crash/Rescue Station	8,200	1,323,900	0.00	0.00	0.70	0.00	0.00	0.00	0.80	1.00	0.00
ACC	54	YWHG999215	Supply	Whiteman	MO	B-2 Conventional Munitions Storage	12,000	1,335,900	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
USAFE	13	TYFR043074	Ops Trng	Ramstein	GE	Hush House	14,100	1,350,000	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	11	FBNV023002R2	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (43rd ECS)	8,800	1,358,800	0.00	1.00	0.70	0.00	0.00	0.00	0.30	1.00	0.00
AFSPC	19	NZAS003000	Supply	Malmstrom	MT	Upgrade Weapons Storage Area, Phase 1	14,800	1,373,600	0.00	1.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
ACC	31	KRSM043014	Maint Prod	Hill	UT	Structural Maintenance Facility	2,200	1,375,800	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	29	TMKH003002	Admin	Pope	NC	Fighter Group HQ Facility	3,800	1,379,600	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	66	BAEY041008	Maint Prod	Beale	CA	Flightline Hangar Upgrade	11,000	1,390,600	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AETC	21	QSEU013001	Cmty Spt	Moody	GA	Construct Unaccompanied Officers Qtrs	9,800	1,400,400	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ANG	2	LKLW939772	Ops Trng	Ft Indiantown	PA	Replace Composite Support Complex	14,200	1,414,600	0.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSPC	7	NZAS013003	Cmty Spt	Malmstrom	MT	Construct Community Activity Center	4,550	1,419,150	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	10	VKAG973009	Admin	Seymour Johnson	NC	Operations/Logistic Group Complex	12,200	1,431,350	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	24	QJVF962007	Maint Prod	Minot	ND	Missile Operations Addition	9,000	1,440,350	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
11WG	3	BXUR218683	Utils Grnds	Bolling	DC	Repair Fence, Main Gate	950	1,441,300	0.00	1.00	1.00	0.00	0.00	0.00	0.30	1.00	0.00
AFSPC	20	XUMU904019	Cmty Spt	Vandenberg	CA	Base Library	3,000	1,444,300	0.00	1.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	1	QJVF952007	Maint Prod	Minot	ND	ADAL Missile Maintenance Vehicle Facility	3,200	1,447,500	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	39	FNWZ013006R1	Ops Trng	Dyess	TX	Fire/Crash Rescue Station	9,600	1,457,100	0.00	0.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	15	NZAS954007	Cmty Spt	Malmstrom	MT	Add/Alter Fitness Center	7,200	1,464,300	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	8	TYFR023005	Maint Prod	Ramstein	GE	Vehicle Maintenance Facility	7,900	1,472,200	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
ANG	9	DPEZ959713	Ops Trng	Cheyenne	WY	Replace Aerial Port and Air Traffic Control Complex	9,100	1,481,300	0.00	1.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	21	HTUX969003	Ops Trng	Gen Mitch	WI	Add/Alter Consolidated Training	5,300	1,486,600	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	26	WWCX953005A	Utils Grnds	Thule	GL	Solid Waste Incinerator	7,500	1,494,100	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	13	FXBM993001	Ops Trng	Ellsworth	SD	B-1B Squadron Operations/AMU Facility	12,600	1,506,700	0.00	1.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
ACC	41	KWRD963010	Maint Prod	Holloman	NM	Survival Equipment Shop	4,650	1,511,350	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
PACAF	14	KNMD993001R1	Ops Trng	Hickam	HI	Repair Airfield Pavement, Phase 3	14,000	1,525,350	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	60	QSEU013004	Maint Prod	Moody	GA	C-130 Maintenance Hangar	7,400	1,532,750	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	2	KNMD979604	Ops Trng	Hickam	HI	Consolidated Training Facility	6,100	1,538,850	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	6	MQNA003001	Cmty Spt	Lajes Field	PO	Transient Quarters	12,600	1,551,450	0.00	0.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	5	GHLN993003	Utils Grnds	FE Warren	WY	Upgrade Stormwater Drainage System	15,000	1,566,450	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	14	ZHTV053204	RDTE	Wright-Pat	OH	Information Technology Complex, Phase 1	25,000	1,591,450	0.00	1.00	0.00	0.00	0.00	0.00	0.30	1.00	0.00
AFSPC	25	CRWU053007	Maint Prod	Buckley	CO	Vehicle Maintenance Facility	4,600	1,596,050	1.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	1.00
AETC	9	PTFL033013	Ops Trng	McGuire	NJ	ADAL NCOA Academic Fac and Dorms	20,000	1,616,050	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AMC	3	PTFL973009	Utils Grnds	McGuire	NJ	Electrical Distribution System	11,800	1,627,850	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	71	SGBP950902	Cmty Spt	Offutt	NE	Child Development Center	7,200	1,635,050	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	22	TMKH020009L	Ops Trng	Pope	NC	682nd Air Support Operations Squadron Facility	7,400	1,642,450	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	80	VKAG963011	Admin	Seymour Johnson	NC	Consolidated Support Center	10,400	1,652,850	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	81	MQNA053002	Cmty Spt	Lajes Field	PO	ADAL Fitness Center	3,300	1,656,150	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
USAFE	14	MSET023001	Ops Trng	Lakenheath	UK	4-Bay Mission Trng Center	7,600	1,663,750	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00	1.00
AFMC	23	ANZY013001	Utils Grnds	Arnold	TN	Power Distribution Control System	11,000	1,674,750	0.00	0.00	0.00	0.00	1.00	0.00	0.30	1.00	0.00
ACC	67	KWRD043006	Ops Trng	Holloman	NM	Taxiway/Hazardous Cargo Pad	24,000	1,698,750	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
AMC	12	GJKZ902509Z	Maint Prod	Fairchild	WA	Civil Engineering Complex	0.02	1.00	0.00	0.00	0.00	0.63	0.00	1.00	0.50	0.3353
AFSPC	17	CRWU073008	Ops Trng	Buckley	CO	Consolidate Fuel Center	0.02	0.50	0.00	0.00	0.00	0.35	1.00	1.00	0.00	0.3340
AFMC	16	ANZY993003	Maint Prod	Arnold	TN	Consolidated Civil Engineering Complex	0.04	0.25	0.00	0.00	0.00	0.40	0.00	1.00	0.30	0.3327
ACC	30	UHHZ993009	Maint Prod	Robins	GA	51st Combat Communication Squad Ops Facility	0.02	0.17	0.00	1.00	0.00	0.39	0.00	0.00	1.00	0.3327
PACAF	6	SMYU993035	Maint Prod	Osan	KO	Replace PMEL Facility	0.07	0.50	0.00	0.00	0.00	0.45	0.00	1.00	1.00	0.3324
ACC	3	QYZH577997	Maint Prod	Mt Home	ID	Operations/Maintenance Complex (726th ACS)	0.25	1.00	0.00	0.00	0.00	0.39	0.00	1.00	0.50	0.3322
AETC	10	PNQS053140	Cmty Spt	Maxwell	AL	SOC Lodging Facility, Phase IV	0.33	0.25	0.00	0.00	0.00	0.51	0.00	1.00	0.80	0.3313
AETC	13	MPYJ973249	Cmty Spt	Lackland	TX	Replace Training Annex Fitness Center	0.06	0.33	0.00	0.00	0.00	0.69	1.00	1.00	1.00	0.3308
AFRC	13	FGWB019001B	Cmty Spt	Dobbins	GA	Visiting Quarters	0.06	1.00	0.00	0.00	0.00	0.63	0.00	1.00	0.00	0.3301
AFSPC	21	SXHT013001	Ops Trng	Patrick	FL	Fire Crash/Rescue Station	0.02	0.33	0.00	0.00	0.00	0.31	1.00	1.00	0.30	0.3299
ACC	54	YWHG999215	Supply	Whiteman	MO	B-2 Conventional Munitions Storage	0.13	0.50	0.00	1.00	0.00	0.48	0.00	0.00	0.50	0.3299
USAFE	13	TYFR043074	Ops Trng	Ramstein	GE	Hush House	0.02	0.17	0.00	0.00	0.00	0.33	1.00	1.00	1.00	0.3299
ACC	11	FBNV023002R2	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (43rd ECS)	0.03	1.00	0.00	1.00	0.00	0.53	0.00	0.00	0.80	0.3296
AFSPC	19	NZAS003000	Supply	Malmstrom	MT	Upgrade Weapons Storage Area, Phase 1	0.25	0.33	0.00	1.00	0.00	0.64	1.00	0.00	0.50	0.3262
ACC	31	KRSM043014	Maint Prod	Hill	UT	Structural Maintenance Facility	0.02	0.20	0.00	1.00	0.00	0.51	0.00	0.00	1.00	0.3258
ACC	29	TMKH003002	Admin	Pope	NC	Fighter Group HQ Facility	0.07	0.25	0.00	0.00	0.00	0.60	0.00	1.00	0.50	0.3248
ACC	66	BAEY041008	Maint Prod	Beale	CA	Flightline Hangar Upgrade	0.02	0.50	0.00	1.00	0.00	0.63	0.00	0.00	0.50	0.3241
AETC	21	QSEU013001	Cmty Spt	Moody	GA	Construct Unaccompanied Officers Qtrs	0.04	1.00	0.00	0.00	0.00	0.49	0.00	1.00	0.50	0.3239
ANG	2	LKLW939772	Ops Trng	Ft Indiantown	PA	Replace Composite Support Complex	0.20	1.00	0.00	0.00	0.00	0.81	0.00	1.00	0.00	0.3239
AFSPC	7	NZAS013003	Cmty Spt	Malmstrom	MT	Construct Community Activity Center	0.03	1.00	0.00	0.00	0.00	0.67	0.00	1.00	0.50	0.3238
ACC	10	VKAG973009	Admin	Seymour Johnson	NC	Operations/Logistic Group Complex	0.09	0.50	0.00	0.00	0.00	0.44	0.00	1.00	0.50	0.3237
AFSPC	24	QJVF962007	Maint Prod	Minot	ND	Missile Operations Addition	0.02	0.25	0.00	1.00	0.00	0.57	0.00	0.00	0.50	0.3232
11WG	3	BXUR218683	Utils Grnds	Bolling	DC	Repair Fence, Main Gate	0.08	0.33	1.00	0.00	0.00	0.72	0.00	1.00	0.30	0.3229
AFSPC	20	XUMU904019	Cmty Spt	Vandenberg	CA	Base Library	0.04	0.33	0.00	0.00	0.00	0.49	0.00	1.00	0.50	0.3224
AFSPC	1	QJVF952007	Maint Prod	Minot	ND	ADAL Missile Maintenance Vehicle Facility	0.11	1.00	0.00	0.00	0.00	0.50	0.00	1.00	0.50	0.3207
ACC	39	FNWZ013006R1	Ops Trng	Dyess	TX	Fire/Crash Rescue Station	0.01	0.33	0.00	0.00	0.00	0.69	0.00	1.00	0.50	0.3201
AFSPC	15	NZAS954007	Cmty Spt	Malmstrom	MT	Add/Alter Fitness Center	0.03	0.50	0.00	0.00	0.00	0.66	0.00	1.00	0.50	0.3193
USAFE	8	TYFR023005	Maint Prod	Ramstein	GE	Vehicle Maintenance Facility	0.06	0.20	0.00	0.00	0.00	0.49	0.00	1.00	1.00	0.3192
ANG	9	DPEZ959713	Ops Trng	Cheyenne	WY	Replace Aerial Port and Air Traffic Control Complex	0.06	1.00	0.00	1.00	0.00	0.03	0.00	0.00	0.00	0.3192
AFRC	21	HTUX969003	Ops Trng	Gen Mitch	WI	Add/Alter Consolidated Training	0.02	1.00	0.00	0.00	0.00	0.55	0.00	1.00	0.00	0.3189
AFSPC	26	WWCX953005A	Utils Grnds	Thule	GL	Solid Waste Incinerator	0.07	1.00	0.00	0.00	0.00	0.72	0.00	1.00	0.00	0.3182
ACC	13	FXBM993001	Ops Trng	Ellsworth	SD	B-1B Squadron Operations/AMU Facility	0.02	0.50	0.00	1.00	0.00	0.27	0.00	0.00	0.50	0.3180
ACC	41	KWRD963010	Maint Prod	Holloman	NM	Survival Equipment Shop	0.02	1.00	0.00	1.00	0.00	0.69	0.00	0.00	0.50	0.3175
PACAF	14	KNMD993001R1	Ops Trng	Hickam	HI	Repair Airfield Pavement, Phase 3	0.02	0.20	0.00	1.00	0.00	0.67	0.00	0.00	0.50	0.3173
ACC	60	QSEU013004	Maint Prod	Moody	GA	C-130 Maintenance Hangar	0.02	0.50	0.00	1.00	0.00	0.59	1.00	0.00	0.50	0.3172
AFRC	2	KNMD979604	Ops Trng	Hickam	HI	Consolidated Training Facility	0.17	1.00	0.00	0.00	0.00	0.60	0.00	1.00	0.50	0.3171
ACC	6	MQNA003001	Cmty Spt	Lajes Field	PO	Transient Quarters	0.11	0.50	0.00	0.00	0.00	0.69	0.00	1.00	0.00	0.3168
AFSPC	5	GHLN993003	Utils Grnds	FE Warren	WY	Upgrade Stormwater Drainage System	0.25	1.00	0.00	0.00	0.00	0.39	0.00	1.00	0.50	0.3150
AFMC	14	ZHTV053204	RDTE	Wright-Pat	OH	Information Technology Complex, Phase 1	0.10	0.33	0.00	1.00	0.00	0.75	0.00	0.00	1.00	0.3141
AFSPC	25	CRWU053007	Maint Prod	Buckley	CO	Vehicle Maintenance Facility	0.03	0.33	0.00	0.00	0.00	0.13	0.00	1.00	0.00	0.3125
AETC	9	PTFL033013	Ops Trng	McGuire	NJ	ADAL NCOA Academic Fac and Dorms	0.03	0.25	0.00	1.00	0.00	0.55	0.00	0.00	0.80	0.3120
AMC	3	PTFL973009	Utils Grnds	McGuire	NJ	Electrical Distribution System	1.00	1.00	0.00	0.00	0.00	0.35	0.00	1.00	0.80	0.3106
ACC	71	SGBP950902	Cmty Spt	Offutt	NE	Child Development Center	0.04	0.25	0.00	0.00	0.00	0.57	0.00	1.00	0.80	0.3100
ACC	22	TMKH020009L	Ops Trng	Pope	NC	682nd Air Support Operations Squadron Facility	0.02	0.33	0.00	1.00	0.00	0.25	0.00	0.00	0.50	0.3092
ACC	80	VKAG963011	Admin	Seymour Johnson	NC	Consolidated Support Center	0.04	0.25	0.00	0.00	0.00	0.66	0.00	1.00	0.50	0.3085
ACC	81	MQNA053002	Cmty Spt	Lajes Field	PO	ADAL Fitness Center	0.02	0.33	0.00	0.00	0.00	0.85	0.00	1.00	0.00	0.3072
USAFE	14	MSET023001	Ops Trng	Lakenheath	UK	4-Bay Mission Trng Center	0.02	0.50	0.00	1.00	0.00	0.43	0.00	0.00	0.50	0.3065
AFMC	23	ANZY013001	Utils Grnds	Arnold	TN	Power Distribution Control System	0.10	0.20	0.00	0.00	0.00	0.45	1.00	1.00	0.30	0.3059
ACC	67	KWRD043006	Ops Trng	Holloman	NM	Taxiway/Hazardous Cargo Pad	0.01	0.33	0.00	1.00	0.00	0.54	0.00	0.00	0.50	0.3058

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
USAFE	17	LJYC003006	Cmty Spt	Incirlik	TU	Consolidated Community Center	4,200	1,702,950	0.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSOC	2	FTEV973018	Ops Trng	Eglin 9	FL	Crash/Fire Rescue Station	5,700	1,708,650	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	0.00
ACC	48	BAEY021004R1	Maint Prod	Beale	CA	Aircraft Corrosion Control Facility	16,500	1,725,150	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFMC	20	ZHTV013203	Admin	Wright-Pat	OH	Consolidate AFMC Law Offices	7,900	1,733,050	0.00	1.00	0.00	0.00	0.00	0.00	0.30	1.00	0.00
AETC	2	EEPZ993006	Ops Trng	Columbus	MS	Replace Control Tower	6,100	1,739,150	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	43	FTEV023005	Ops Trng	Eglin 9	FL	Mobility and Training Facility (823 RHS)	2,100	1,741,250	0.00	0.00	0.70	0.00	0.00	0.00	1.00	0.00	0.00
AETC	20	NKAK953011	Maint Prod	Little Rock	AR	Replace C-130 Maintenance Hangar	11,800	1,753,050	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	34	RKMF983002R3	Ops Trng	Nellis	NV	Explosive Ordnance Disposal Facility	4,500	1,757,550	0.00	1.00	0.00	0.00	0.00	0.00	0.30	1.00	0.00
PACAF	9	KNMD033001R1	Strat Mob	Hickam	HI	Consol Joint Mobility Complex (PACAF/AMC)	29,800	1,787,350	0.00	1.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00
AFMC	10	ANZY033001	RDTE	Arnold	TN	Upgrade Jet Engine Air Induction Sys, Phase V	11,200	1,798,550	0.00	0.00	0.00	0.00	0.00	0.00	0.80	1.00	0.00
ACC	14	CZQZ993002	Maint Prod	Cannon	NM	Aerospace Ground Equipment (AGE) Complex	8,700	1,807,250	0.00	1.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	28	KRSM043013	Maint Prod	Hill	UT	Consolidate Munitions Flight Maintenance	4,500	1,811,750	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	22	FTFA973002	Ops Trng	Eglin	FL	Civil Engineer Training Facility	3,400	1,815,150	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	12	FBNV033003R1	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (41st ECS)	9,400	1,824,550	0.00	1.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	59	QJVF952112	Maint Prod	Minot	ND	B-52 Maintenance Dock	13,300	1,837,850	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFMC	25	UHHZ003005	Ops Trng	Robins	GA	Replace Fire/Crash Rescue Station	6,100	1,843,950	0.00	0.00	0.70	0.00	0.00	0.00	0.80	1.00	0.00
USAFA	2	XQPZ034001	Utils Grnds	USAFA	CO	Sludge Dewatering Fac. (WWTP)	1,300	1,845,250	0.00	0.00	0.00	0.00	1.00	0.00	0.80	0.00	0.00
AFMC	17	ZHTV053202	Utils Grnds	Wright-Pat	OH	Replace Steam Lines/Tunnels Area B, PH-I	11,600	1,856,850	0.00	0.00	0.00	0.00	0.00	0.00	0.30	1.00	0.00
11WG	2	BXUR459228	Maint Prod	Bolling	DC	CE Maintenance and Readiness Facility	3,750	1,860,600	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	10	QJVF013100	Maint Prod	Minot	ND	Security Forces Vehicle Support Facility	6,500	1,867,100	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	11	XUMU003000	Cmty Spt	Vandenberg	CA	Add/Alter Child Development Center	5,300	1,872,400	0.00	1.00	0.70	0.00	0.00	0.00	0.80	1.00	0.00
ACC	21	TMKH963003R1	Maint Prod	Pope	NC	A-10 ECM Consolidated Maintenance Facility	5,400	1,877,800	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	5	ZHTV963204	Ops Trng	Wright-Pat	OH	Consolidated Fire/Crash Rescue Station	10,400	1,888,200	0.00	1.00	0.70	0.00	0.00	0.00	0.00	1.00	0.00
ACC	69	QJVF012002	Ops Trng	Minot	ND	Air Traffic Control Complex	9,800	1,898,000	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFSPC	18	GHLN053016	Ops Trng	FE Warren	WY	EOD Facility	3,500	1,901,500	1.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	1.00
AFMC	22	FTFA033011	RDTE	Eglin	FL	Offshore Target Area	21,000	1,922,500	0.00	0.00	0.00	1.00	0.00	0.00	0.30	1.00	0.00
AFSPC	13	SXHT013006A	Cmty Spt	Patrick	FL	Child Development Center	6,400	1,928,900	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
ACC	42	KWRD003001	Ops Trng	Holloman	NM	Fire/Crash Rescue Station	14,400	1,943,300	0.00	0.00	0.70	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	17	TDKA989002	Maint Prod	Peterson	CO	Fuel Systems Maintenance	8,700	1,952,000	0.00	0.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	24	UHHZ013004	Ops Trng	Robins	GA	Flight Simulator Facility (93 ACW)	4,500	1,956,500	0.00	0.00	1.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	16	TDKA959006	Ops Trng	Peterson	CO	Aerial Port/Airlift Facility	5,700	1,962,200	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	33	QYZH983006R2	Ops Trng	Mt Home	ID	Base Operations Facility	8,700	1,970,900	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	15	FTEV003009	Maint Prod	Eglin 9	FL	Vehicle Maintenance Facility (823 RHS)	5,900	1,976,800	0.00	1.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
AFMC	8	JUBJ023135	Admin	Maxwell	AL	Integrated Operational Support Facility	16,000	1,992,800	0.00	1.00	0.70	0.00	0.00	0.00	0.00	1.00	0.00
AFMC	19	FSPM035501	Cmty Spt	Edwards	CA	Fitness Center	13,400	2,006,200	0.00	0.00	0.00	0.00	0.00	0.00	0.80	1.00	0.00
AFMC	18	CNBC043001R	Admin	Brooks	TX	Consolidated Acquisition/Support Facility	13,400	2,019,600	0.00	1.00	0.70	0.00	0.00	0.00	0.30	1.00	0.00
AFSOC	3	FTEV943001	Cmty Spt	Eglin 9	FL	Add to Security Force Operations Facility	1,650	2,021,250	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	27	KRSM023009	Ops Trng	Hill	UT	Consolidated Software Support Facility, Phase 1	16,500	2,037,750	0.00	0.00	0.00	0.00	1.00	0.00	0.30	1.00	0.00
AETC	18	MAHG063000	Cmty Spt	Keesler	MS	ADAL Child Development Center	2,700	2,040,450	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFSPC	8	CRWU073005	Cmty Spt	Buckley	CO	Dining Hall	3,000	2,043,450	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
USAFE	5	TYFR033042	Medical	Ramstein	GE	86 AES Facility	9,100	2,052,550	0.00	1.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
PACAF	19	BTSG073001R1	Ops Trng	Blair Lake Range	AK	Replace Range Maintenance Complex	19,500	2,072,050	0.00	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00
PACAF	10	MLWR053121	Cmty Spt	Kunsan	KO	Repl Consolid Personnel Process/Theater Fac	4,600	2,076,650	0.00	1.00	0.70	0.00	0.00	0.00	1.00	1.00	0.00
AFSPC	16	GLEN043003	Cmty Spt	Schriever	CO	Add/Alter Fitness Center	10,800	2,087,450	0.00	1.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFMC	12	ANZY013008	RDTE	Arnold	TN	Consolidate Rocket Test Altitude Capability	7,300	2,094,750	0.00	0.00	0.00	0.00	0.00	0.00	0.80	1.00	0.00
AFMC	11	WWYK043019	Utils Grnds	Tinker	OK	Force/Asset Protection Land Acquisition	8,700	2,103,450	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	65	AWUB025502	Ops Trng	Barksdale	LA	Weapons Load Crew Training Facility	19,000	2,122,450	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	9	CTGB989003	Maint Prod	Grissom	IN	Add/Alter Aircraft Maintenance Hangar	5,750	2,128,200	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	72	QSEU953004	Cmty Spt	Moody	GA	Child Development Center	6,600	2,134,800	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
USAFE	17	LJYC003006	Cmty Spt	Incirlik	TU	Consolidated Community Center	0.05	1.00	0.00	0.00	0.00	0.59	0.00	1.00	0.50	0.3055
AFSOC	2	FTEV973018	Ops Trng	Eglin 9	FL	Crash/Fire Rescue Station	0.05	0.33	0.00	0.00	0.00	0.25	0.00	1.00	0.80	0.3053
ACC	48	BAEY021004R1	Maint Prod	Beale	CA	Aircraft Corrosion Control Facility	0.02	1.00	0.00	1.00	0.00	0.31	0.00	0.00	0.50	0.3049
AFMC	20	ZHTV013203	Admin	Wright-Pat	OH	Consolidate AFMC Law Offices	0.08	0.20	0.00	0.00	0.00	0.93	0.00	1.00	1.00	0.3043
AETC	2	EEPZ993006	Ops Trng	Columbus	MS	Replace Control Tower	0.05	1.00	0.00	1.00	0.00	0.61	0.00	0.00	0.30	0.3039
ACC	43	FTEV023005	Ops Trng	Eglin 9	FL	Mobility and Training Facility (823 RHS)	0.01	0.14	0.00	0.00	1.00	0.30	1.00	0.00	0.80	0.3037
AETC	20	NKAK953011	Maint Prod	Little Rock	AR	Replace C-130 Maintenance Hangar	0.03	0.50	0.00	1.00	0.00	0.46	0.00	0.00	0.50	0.3037
ACC	34	RKMF983002R3	Ops Trng	Nellis	NV	Explosive Ordnance Disposal Facility	0.01	1.00	0.00	0.00	0.00	0.67	0.00	1.00	1.00	0.3035
PACAF	9	KNMD033001R1	Strat Mob	Hickam	HI	Consol Joint Mobility Complex (PACAF/AMC)	0.33	0.25	0.00	0.00	1.00	0.42	0.00	0.00	0.50	0.3033
AFMC	10	ANZY033001	RDTE	Arnold	TN	Upgrade Jet Engine Air Induction Sys, Phase V	0.17	0.50	0.00	0.00	0.00	0.63	0.00	1.00	0.30	0.3033
ACC	14	CZQZ993002	Maint Prod	Cannon	NM	Aerospace Ground Equipment (AGE) Complex	0.04	0.50	0.00	1.00	0.00	0.59	0.00	0.00	0.50	0.3027
ACC	28	KRSM043013	Maint Prod	Hill	UT	Consolidate Munitions Flight Maintenance	0.03	0.25	0.00	1.00	0.00	0.31	0.00	0.00	1.00	0.3025
AFRC	22	FTFA973002	Ops Trng	Eglin	FL	Civil Engineer Training Facility	0.02	0.25	0.00	0.00	0.00	0.49	1.00	1.00	1.00	0.3021
ACC	12	FBNV033003R1	Ops Trng	Davis-Monthan	AZ	EC-130 Squadron Ops/AMU Facility (41st ECS)	0.03	0.50	0.00	1.00	0.00	0.53	0.00	0.00	0.80	0.3018
ACC	59	QJVF952112	Maint Prod	Minot	ND	B-52 Maintenance Dock	0.02	0.20	0.00	1.00	0.00	0.54	0.00	0.00	0.50	0.3011
AFMC	25	UHHZ003005	Ops Trng	Robins	GA	Replace Fire/Crash Rescue Station	0.01	0.20	0.00	0.00	0.00	0.42	0.00	1.00	1.00	0.3004
USAFA	2	XQPZ034001	Utils Grnds	USAFA	CO	Sludge Dewatering Fac. (WWTP)	0.50	0.50	0.00	0.00	0.00	0.19	0.00	1.00	0.80	0.3000
AFMC	17	ZHTV053202	Utils Grnds	Wright-Pat	OH	Replace Steam Lines/Tunnels Area B, PH-I	0.11	0.25	0.00	0.00	0.00	1.00	0.00	1.00	1.00	0.2996
11WG	2	BXUR459228	Maint Prod	Bolling	DC	CE Maintenance and Readiness Facility	0.10	0.50	0.00	0.00	0.00	0.66	0.00	1.00	0.30	0.2992
AFSPC	10	QJVF013100	Maint Prod	Minot	ND	Security Forces Vehicle Support Facility	0.04	0.50	0.00	0.00	0.00	0.50	0.00	1.00	0.50	0.2991
AFSPC	11	XUMU003000	Cmty Spt	Vandenberg	CA	Add/Alter Child Development Center	0.08	0.50	0.00	0.00	0.00	0.26	0.00	1.00	0.50	0.2985
ACC	21	TMKH963003R1	Maint Prod	Pope	NC	A-10 ECM Consolidated Maintenance Facility	0.03	0.50	0.00	1.00	0.00	0.10	0.00	0.00	0.50	0.2978
AFMC	5	ZHTV963204	Ops Trng	Wright-Pat	OH	Consolidated Fire/Crash Rescue Station	0.04	1.00	0.00	0.00	0.00	0.72	0.00	1.00	1.00	0.2978
ACC	69	QJVF012002	Ops Trng	Minot	ND	Air Traffic Control Complex	0.01	0.17	0.00	1.00	0.00	0.52	0.00	0.00	0.50	0.2973
AFSPC	18	GHLN053016	Ops Trng	FE Warren	WY	EOD Facility	0.01	0.33	0.00	0.00	0.00	0.49	0.00	1.00	0.50	0.2963
AFMC	22	FTFA033011	RDTE	Eglin	FL	Offshore Target Area	0.11	0.33	0.00	1.00	0.00	0.41	0.00	0.00	1.00	0.2956
AFSPC	13	SXHT013006A	Cmty Spt	Patrick	FL	Child Development Center	0.06	0.50	0.00	0.00	0.00	0.64	0.00	1.00	0.30	0.2954
ACC	42	KWRD003001	Ops Trng	Holloman	NM	Fire/Crash Rescue Station	0.01	0.50	0.00	0.00	0.00	0.43	0.00	1.00	0.50	0.2949
AFRC	17	TDKA989002	Maint Prod	Peterson	CO	Fuel Systems Maintenance	0.03	0.25	0.00	1.00	0.00	0.24	1.00	0.00	0.50	0.2943
ACC	24	UHHZ013004	Ops Trng	Robins	GA	Flight Simulator Facility (93 ACW)	0.02	0.25	0.00	1.00	0.00	0.12	0.00	0.00	1.00	0.2932
AFRC	16	TDKA959006	Ops Trng	Peterson	CO	Aerial Port/Airlift Facility	0.02	0.33	0.00	0.00	0.00	0.49	1.00	1.00	0.50	0.2929
ACC	33	QYZH983006R2	Ops Trng	Mt Home	ID	Base Operations Facility	0.01	0.50	0.00	1.00	0.00	0.69	0.00	0.00	0.50	0.2921
ACC	15	FTEV003009	Maint Prod	Eglin 9	FL	Vehicle Maintenance Facility (823 RHS)	0.04	0.20	0.00	0.00	0.00	0.33	1.00	1.00	0.80	0.2918
AFMC	8	JUBJ023135	Admin	Maxwell	AL	Integrated Operational Support Facility	0.14	1.00	0.00	0.00	0.00	0.67	0.00	1.00	0.80	0.2894
AFMC	19	FSPM035501	Cmty Spt	Edwards	CA	Fitness Center	0.03	0.33	0.00	0.00	0.00	0.50	0.00	1.00	0.80	0.2892
AFMC	18	CNBC043001R	Admin	Brooks	TX	Consolidated Acquisition/Support Facility	0.05	0.50	0.00	0.00	0.00	0.67	0.00	1.00	0.30	0.2889
AFSOC	3	FTEV943001	Cmty Spt	Eglin 9	FL	Add to Security Force Operations Facility	0.20	0.25	0.00	0.00	0.00	0.37	0.00	1.00	0.80	0.2889
AFMC	27	KRSM023009	Ops Trng	Hill	UT	Consolidated Software Support Facility, Phase 1	0.06	0.33	0.00	0.00	0.00	0.58	0.00	1.00	1.00	0.2888
AETC	18	MAHG063000	Cmty Spt	Keesler	MS	ADAL Child Development Center	0.05	0.33	0.00	0.00	0.00	0.28	0.00	1.00	1.00	0.2827
AFSPC	8	CRWU073005	Cmty Spt	Buckley	CO	Dining Hall	0.03	1.00	0.00	0.00	0.00	0.26	0.00	1.00	0.00	0.2825
USAFE	5	TYFR033042	Medical	Ramstein	GE	86 AES Facility	1.00	0.33	0.00	0.00	0.00	0.70	0.00	1.00	1.00	0.2808
PACAF	19	BTSG073001R1	Ops Trng	Blair Lake Range	AK	Replace Range Maintenance Complex	0.01	1.00	0.00	0.00	0.00	0.40	1.00	1.00	0.00	0.2802
PACAF	10	MLWR053121	Cmty Spt	Kunsan	KO	Repl Consolid Personnel Process/Theater Fac	0.08	0.50	0.00	0.00	1.00	0.31	0.00	0.00	0.30	0.2798
AFSPC	16	GLEN043003	Cmty Spt	Schriever	CO	Add/Alter Fitness Center	0.03	0.50	0.00	0.00	0.00	0.21	0.00	1.00	0.30	0.2796
AFMC	12	ANZY013008	RDTE	Arnold	TN	Consolidate Rocket Test Altitude Capability	0.14	0.33	0.00	0.00	0.00	0.49	0.00	1.00	0.30	0.2788
AFMC	11	WWYK043019	Utils Grnds	Tinker	OK	Force/Asset Protection Land Acquisition	0.17	0.50	1.00	0.00	0.00	0.60	0.00	1.00	1.00	0.2776
ACC	65	AWUB025502	Ops Trng	Barksdale	LA	Weapons Load Crew Training Facility	0.01	0.20	0.00	0.00	0.00	0.51	0.00	1.00	0.80	0.2775
AFRC	9	CTGB989003	Maint Prod	Grissom	IN	Add/Alter Aircraft Maintenance Hangar	0.05	1.00	0.00	1.00	0.00	0.62	0.00	0.00	0.00	0.2758
ACC	72	QSEU953004	Cmty Spt	Moody	GA	Child Development Center	0.03	0.33	0.00	0.00	0.00	0.32	0.00	1.00	0.50	0.2753

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
ACC	79	VLSB953019R1	Cmty Spt	Shaw	SC	Base Library	4,400	2,139,200	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	14	AWUB979501	Maint Prod	Barksdale	LA	RED HORSE Vehicle Maintenance	3,000	2,142,200	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
ACC	25	FBNV963007	Ops Trng	Davis-Monthan	AZ	Fire/Crash Rescue Station	9,500	2,151,700	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	3	MPLS993284	Cmty Spt	Lackland	TX	Consolidated Security Forces Ops Fac	7,800	2,159,500	0.00	1.00	1.00	0.00	0.00	0.00	0.30	0.00	0.00
PACAF	15	KNMD063000	Cmty Spt	Hickam	HI	Replace Fire/Crash Rescue Station	13,600	2,173,100	0.00	0.00	0.70	0.00	0.00	0.00	0.30	0.00	0.00
AMC	16	NKAK043006	Admin	Little Rock	AR	Add/Alter Group HQ	2,800	2,175,900	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	24	GJKZ80011Z	Ops Trng	Fairchild	WA	Water Survival Training School	17,000	2,192,900	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
USAFE	12	ASHE043007	Admin	Aviano	IT	Consolidated Support Center (CSC), Phase 2	8,250	2,201,150	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
AFRC	15	FJXT983001	Ops Trng	Dover	DE	Aerial Port Training Facility	1,350	2,202,500	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
PACAF	7	HPZW013100B	Ops Trng	Galena	AK	Repair Airfield Pavement	15,000	2,217,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AFMC	7	FTFA023004	Ops Trng	Eglin	FL	Replace Explosive Ordnance Disposal Complex	2,700	2,220,200	0.00	0.00	0.70	0.00	0.00	0.00	0.30	1.00	1.00
ACC	8	VLSB983002R3	Ops Trng	Shaw	SC	USCENTAF Communications Squadron Facility	9,100	2,229,300	0.00	1.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	52	RKMF033008	Maint Prod	Nellis	NV	Vehicle Maintenance Complex	10,800	2,240,100	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSPC	4	TDKA033002	Admin	Peterson	CO	Mission Support Facility PH II	10,400	2,250,500	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PACAF	12	AJJY963110	Supply	Andersen	GU	Const Consolid War Reserve Mat Stor Fac	21,500	2,272,000	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	6	YTPM940004	Ops Trng	Westover	MA	Base Operations/Command Post	4,050	2,276,050	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	16	JCGU043000	Cmty Spt	Goodfellow	TX	Replace Chapel Center	3,400	2,279,450	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
PACAF	4	KNMD013001	Utils Grnds	Hickam	HI	Upgrade Electrical Distribution System	15,500	2,294,950	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	18	VKAG973004R1	Ops Trng	Seymour Johnson	NC	Fire/Crash Rescue Station	10,600	2,305,550	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
USAFE	3	MSET043000	Strat Mob	Lakenheath	UK	AEF Cargo Processing	15,950	2,321,500	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	46	RKMF043001	Ops Trng	Nellis	NV	Nevada Training Range Initiative	15,000	2,336,500	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	63	CZQZ903011	Ops Trng	Cannon	NM	Approach Lights Runway 13	1,000	2,337,500	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSPC	22	GLEN953001	Cmty Spt	Schriever	CO	Security Forces Regional Training Facility	8,900	2,346,400	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00
AFRC	8	WWYK979043A	Ops Trng	Tinker	OK	Squadron Operations Facility	3,900	2,350,300	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	49	FTFA973013	Ops Trng	Eglin	FL	Squadron Operations Facility (58 FS)	4,900	2,355,200	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	5	VKAG979002	Ops Trng	Seymour Johnson	NC	Security Forces Facility	1,650	2,356,850	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	58	FTFA983008	Ops Trng	Eglin	FL	Squadron Operations Facility (60 FS)	5,000	2,361,850	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFRC	7	GLEN043003	Admin	Schriever	CO	Consolidated Space Group Operations	7,150	2,369,000	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	5	ZHTV013001	Ops Trng	Wright-Pat	OH	Alter Graduate Education Facility	13,000	2,382,000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00
ACC	83	YWHG011004	Utils Grnds	Whiteman	MO	South Land Acquisition	2,200	2,384,200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
USAFE	16	AEDY043001	Cmty Spt	Alconbury	UK	Chapel Center	2,300	2,386,500	0.00	0.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
AMC	7	XDAT963103P1	Maint Prod	Travis	CA	AMOG Global Deployment Center	15,000	2,401,500	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
USAFE	10	EXSW983002	Admin	Croughton	UK	BCE - Complex	5,100	2,406,600	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PACAF	16	FTQW033002	Maint Prod	Eielson	AK	Consolidated Munitions Vehicles/Trailers Warm Storage	7,600	2,414,200	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	14	VNVP023002	Utils Grnds	Sheppard	TX	Construct Auxiliary Water Service	1,300	2,415,500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AFRC	12	YWHG979501	Ops Trng	Whiteman	MO	A-10 Squadron Operations	3,650	2,419,150	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
ACC	37	VLSB023002R1	Maint Prod	Shaw	SC	Aircraft Maintenance Unit Facility	6,900	2,426,050	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AFRC	3	TQKD980443P2	Ops Trng	Portland	OR	Consolidated Training Facility Phase 2	3,800	2,429,850	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AETC	17	JCGU023000	Ops Trng	Goodfellow	TX	Consolidated Comm Complex	7,000	2,436,850	0.00	1.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
USAFE	9	EXSW033005	Maint Prod	Croughton	UK	Transportation Complex	2,150	2,439,000	0.00	1.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
ACC	73	BAEY041006	Cmty Spt	Beale	CA	Child Development Center	6,800	2,445,800	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSPC	12	TDKA033004	Cmty Spt	Peterson	CO	Widen West Gate	5,010	2,450,810	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	1.00
ACC	53	WWYK020042	Ops Trng	Tinker	OK	ADAL Squadron Operations Facility (552 ACW)	1,200	2,452,010	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
AFSPC	23	TDKA063001	Utils Grnds	Peterson	CO	NORAD/USSPACE/ARSPACE Access	2,950	2,454,960	0.00	0.00	0.00	0.00	0.00	0.00	0.80	0.00	1.00
AFRC	24	RVKQ009011	Cmty Spt	Niagara	NY	Visiting Quarters Phase 1	8,600	2,463,560	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	45	HACC003002	Maint Prod	Al Udeid		Munitions Maintenance Facility	1,600	2,465,160	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	32	FTEV013007	Supply	Eglin 9	FL	Mobility Warehouse (823 RHS)	2,050	2,467,210	0.00	1.00	0.00	0.00	0.00	0.00	0.80	0.00	0.00
PACAF	13	DBQT057001	Utils Grnds	Cape Lisburne	AK	Replace Site-Wide Infrastructure	27,000	2,494,210	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AFMC	2	TUAL043007	RDTE	Tularosa	NM	Upgrade National Radar Cross Section Test Facility	3,600	2,497,810	0.00	1.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
ACC	79	VLSB953019R1	Cmty Spt	Shaw	SC	Base Library	0.02	0.33	0.00	0.00	0.00	0.72	0.00	1.00	0.80	0.2750
AFRC	14	AWUB979501	Maint Prod	Barksdale	LA	RED HORSE Vehicle Maintenance	0.04	1.00	0.00	0.00	0.00	0.50	0.00	1.00	0.80	0.2749
ACC	25	FBNV963007	Ops Trng	Davis-Monthan	AZ	Fire/Crash Rescue Station	0.02	0.33	0.00	0.00	0.00	0.33	1.00	1.00	0.80	0.2749
AETC	3	MPLS993284	Cmty Spt	Lackland	TX	Consolidated Security Forces Ops Fac	0.17	1.00	0.00	0.00	0.00	0.22	0.00	1.00	1.00	0.2738
PACAF	15	KNMD063000	Cmty Spt	Hickam	HI	Replace Fire/Crash Rescue Station	0.05	0.17	0.00	0.00	0.00	0.37	1.00	1.00	0.50	0.2724
AMC	16	NKAK043006	Admin	Little Rock	AR	Add/Alter Group HQ	0.05	1.00	0.00	0.00	0.00	0.57	0.00	1.00	0.50	0.2715
AETC	24	GJKZ80011Z	Ops Trng	Fairchild	WA	Water Survival Training School	0.02	0.50	0.00	0.00	0.00	0.87	0.00	1.00	0.50	0.2714
USAFE	12	ASHE043007	Admin	Aviano	IT	Consolidated Support Center (CSC), Phase 2	0.06	0.50	0.00	0.00	0.00	0.27	0.00	1.00	0.50	0.2704
AFRC	15	FJXT983001	Ops Trng	Dover	DE	Aerial Port Training Facility	0.02	0.50	0.00	0.00	0.00	0.40	0.00	1.00	0.50	0.2694
PACAF	7	HPZW013100B	Ops Trng	Galena	AK	Repair Airfield Pavement	0.04	1.00	0.00	1.00	0.00	0.84	0.00	0.00	0.00	0.2691
AFMC	7	FTFA023004	Ops Trng	Eglin	FL	Replace Explosive Ordnance Disposal Complex	0.07	1.00	0.00	0.00	0.00	0.28	0.00	1.00	1.00	0.2675
ACC	8	VLSB983002R3	Ops Trng	Shaw	SC	USCENTAF Communications Squadron Facility	0.03	1.00	0.00	1.00	0.00	0.29	0.00	0.00	0.80	0.2670
ACC	52	RKMF033008	Maint Prod	Nellis	NV	Vehicle Maintenance Complex	0.02	0.25	0.00	0.00	0.00	0.37	1.00	1.00	1.00	0.2647
AFSPC	4	TDKA033002	Admin	Peterson	CO	Mission Support Facility PH II	0.25	1.00	0.00	0.00	0.00	0.75	0.00	1.00	0.50	0.2644
PACAF	12	AJJY963110	Supply	Andersen	GU	Const Consolid War Reserve Mat Stor Fac	0.33	1.00	0.00	0.00	0.00	0.47	0.00	1.00	0.30	0.2598
AFRC	6	YTPM940004	Ops Trng	Westover	MA	Base Operations/Command Post	0.08	1.00	0.00	1.00	0.00	0.48	0.00	0.00	0.00	0.2585
AETC	16	JCGU043000	Cmty Spt	Goodfellow	TX	Replace Chapel Center	0.03	0.50	0.00	0.00	0.00	0.34	0.00	1.00	0.30	0.2573
PACAF	4	KNMD013001	Utils Grnds	Hickam	HI	Upgrade Electrical Distribution System	0.33	0.33	0.00	0.00	0.00	0.75	0.00	1.00	0.50	0.2567
ACC	18	VKAG973004R1	Ops Trng	Seymour Johnson	NC	Fire/Crash Rescue Station	0.02	0.33	0.00	0.00	0.00	0.66	0.00	1.00	0.50	0.2552
USAFE	3	MSET043000	Strat Mob	Lakenheath	UK	AEF Cargo Processing	0.50	1.00	0.00	0.00	1.00	0.70	0.00	0.00	0.50	0.2541
ACC	46	RKMF043001	Ops Trng	Nellis	NV	Nevada Training Range Initiative	0.01	0.50	0.00	1.00	0.00	0.40	0.00	0.00	1.00	0.2515
ACC	63	CZQZ903011	Ops Trng	Cannon	NM	Approach Lights Runway 13	0.01	0.33	0.00	1.00	0.00	0.54	0.00	0.00	0.50	0.2497
AFSPC	22	GLEN953001	Cmty Spt	Schriever	CO	Security Forces Regional Training Facility	0.04	0.33	0.00	0.00	0.00	0.15	0.00	1.00	0.30	0.2491
AFRC	8	WWYK979043A	Ops Trng	Tinker	OK	Squadron Operations Facility	0.03	1.00	0.00	1.00	0.00	0.20	0.00	0.00	1.00	0.2467
ACC	49	FTFA973013	Ops Trng	Eglin	FL	Squadron Operations Facility (58 FS)	0.01	0.20	0.00	1.00	0.00	0.42	0.00	0.00	1.00	0.2419
AFRC	5	VKAG979002	Ops Trng	Seymour Johnson	NC	Security Forces Facility	0.04	1.00	0.00	0.00	0.00	0.47	0.00	1.00	0.50	0.2418
ACC	58	FTFA983008	Ops Trng	Eglin	FL	Squadron Operations Facility (60 FS)	0.01	0.17	0.00	1.00	0.00	0.42	0.00	0.00	1.00	0.2406
AFRC	7	GLEN043003	Admin	Schriever	CO	Consolidated Space Group Operations	0.17	1.00	0.00	1.00	0.00	0.24	0.00	0.00	0.30	0.2374
AETC	5	ZHTV013001	Ops Trng	Wright-Pat	OH	Alter Graduate Education Facility	0.04	0.50	0.00	1.00	0.00	0.49	0.00	0.00	1.00	0.2371
ACC	83	YWHG011004	Utils Grnds	Whiteman	MO	South Land Acquisition	0.06	0.25	1.00	0.00	0.00	0.29	1.00	1.00	0.50	0.2347
USAFE	16	AEDY043001	Cmty Spt	Alconbury	UK	Chapel Center	0.05	1.00	0.00	0.00	0.00	0.60	0.00	1.00	0.00	0.2346
AMC	7	XDAT963103P1	Maint Prod	Travis	CA	AMOG Global Deployment Center	0.06	1.00	0.00	0.00	1.00	0.55	0.00	0.00	0.80	0.2331
USAFE	10	EXSW983002	Admin	Croughton	UK	BCE - Complex	0.10	0.50	0.00	0.00	0.00	0.77	0.00	1.00	0.00	0.2319
PACAF	16	FTQW033002	Maint Prod	Eielson	AK	Consolidated Munitions Vehicles/Trailers Warm Storage	0.04	0.50	0.00	0.00	0.00	0.41	0.00	1.00	0.50	0.2313
AETC	14	VNVP023002	Utils Grnds	Sheppard	TX	Construct Auxiliary Water Service	0.13	0.33	0.00	0.00	0.00	0.76	0.00	1.00	1.00	0.2313
AFRC	12	YWHG979501	Ops Trng	Whiteman	MO	A-10 Squadron Operations	0.02	1.00	0.00	1.00	0.00	0.16	0.00	0.00	0.50	0.2290
ACC	37	VLSB023002R1	Maint Prod	Shaw	SC	Aircraft Maintenance Unit Facility	0.02	0.50	0.00	1.00	0.00	0.39	0.00	0.00	0.80	0.2289
AFRC	3	TQKD980443P2	Ops Trng	Portland	OR	Consolidated Training Facility Phase 2	0.13	1.00	0.00	0.00	0.00	0.42	0.00	1.00	0.00	0.2251
AETC	17	JCGU023000	Ops Trng	Goodfellow	TX	Consolidated Comm Complex	0.02	0.33	0.00	0.00	0.00	0.44	0.00	1.00	0.30	0.2233
USAFE	9	EXSW033005	Maint Prod	Croughton	UK	Transportation Complex	0.05	1.00	0.00	0.00	0.00	0.37	0.00	1.00	0.00	0.2232
ACC	73	BAEY041006	Cmty Spt	Beale	CA	Child Development Center	0.03	0.33	0.00	0.00	0.00	0.51	0.00	1.00	0.50	0.2199
AFSPC	12	TDKA033004	Cmty Spt	Peterson	CO	Widen West Gate	0.07	0.50	1.00	0.00	0.00	0.19	0.00	1.00	0.50	0.2195
ACC	53	WWYK020042	Ops Trng	Tinker	OK	ADAL Squadron Operations Facility (552 ACW)	0.01	0.25	0.00	1.00	0.00	0.20	0.00	0.00	1.00	0.2159
AFSPC	23	TDKA063001	Utils Grnds	Peterson	CO	NORAD/USSPACE/ARSPACE Access	0.08	0.20	0.00	0.00	1.00	0.34	0.00	0.00	0.50	0.2140
AFRC	24	RVKQ009011	Cmty Spt	Niagara	NY	Visiting Quarters Phase 1	0.04	1.00	0.00	0.00	0.00	0.60	0.00	1.00	0.00	0.2125
ACC	45	HACC003002	Maint Prod	Al Udeid		Munitions Maintenance Facility	0.02	1.00	0.00	1.00	0.00	0.37	0.00	0.00	0.00	0.2105
ACC	32	FTEV013007	Supply	Eglin 9	FL	Mobility Warehouse (823 RHS)	0.20	0.17	0.00	0.00	1.00	0.16	0.00	0.00	0.80	0.2100
PACAF	13	DBQT057001	Utils Grnds	Cape Lisburne	AK	Replace Site-Wide Infrastructure	0.14	1.00	0.00	0.00	0.00	0.56	0.00	1.00	0.00	0.2099
AFMC	2	TUAL043007	RDTE	Tularosa	NM	Upgrade National Radar Cross Section Test Facility	1.00	1.00	0.00	0.00	0.00	0.22	0.00	1.00	0.00	0.2093

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Cost	Cumulative Total	Force Structure	Consolidation	Footprint Reduction	Joint Use	Payback	Deficit IRR	Restoration and Modernization IRR	Design Build	Years to IOC
ACC	36	UHHZ023004	Supply	Robins	GA	Consolidated Deployment Storage Facility	4,300	2,502,110	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	64	UHHZ980301	Utils Grnds	Robins	GA	Upgrade Apron Power (93 ACW)	2,000	2,504,110	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.00	0.00
PACAF	8	LXEZ023920	Utils Grnds	Kadena	JA	Upgrade Fire Protection Systems	9,900	2,514,010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ANG	12	WEFM979532	Ops Trng	Stanly County	NC	Relocate Communications and Electronics Training	9,900	2,523,910	0.00	1.00	0.70	0.00	0.00	0.00	0.00	0.00	0.00
ACC	75	LKTC043103	Ops Trng	Indian Springs	NV	Security Forces Academics Facility	9,500	2,533,410	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	82	YWHG999216	Utils Grnds	Whiteman	MO	North Land Acquisition	3,200	2,536,610	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	47	RKMF043002	Ops Trng	Indian Springs	NV	Security Forces MOUT Complex	8,500	2,545,110	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	62	HACC023018	Supply	Al Udeid		Covered Storage	1,900	2,547,010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	61	UHHZ033003	Supply	Robins	GA	Hazardous Material Storage Facility (93 ACW)	2,000	2,549,010	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	55	HACC983001	Admin	Al Udeid		QAE/Contingency Flight Office	1,500	2,550,510	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ACC	78	LKTC043102	Cmty Spt	Indian Springs	NV	AEF Student Billeting/Dining Hall	21,900	2,572,410	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AMC	15	PTFL013010	Cmty Spt	Ft Dix (AMWC)	NJ	AMWC Visiting Quarters	15,000	2,587,410	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

MAJCOM	MAJCOM Priority	Project #	Fac Class	Base	State	Title	Mission Panel Points	Installation CC Priority Points	Corrects ATFP Deficiency	Direct Support	Warfighting Enabler	Avg Facility Class	Eliminates Safety	Support Facility	Base Population	New Score
ACC	36	UHHZ023004	Supply	Robins	GA	Consolidated Deployment Storage Facility	0.17	0.14	0.00	0.00	1.00	0.39	1.00	0.00	1.00	0.2061
ACC	64	UHHZ980301	Utils Grnds	Robins	GA	Upgrade Apron Power (93 ACW)	0.09	0.11	0.00	0.00	0.00	0.32	0.00	1.00	1.00	0.2005
PACAF	8	LXEZ023920	Utils Grnds	Kadena	JA	Upgrade Fire Protection Systems	0.20	1.00	0.00	0.00	0.00	0.21	0.00	1.00	1.00	0.1909
ANG	12	WEFM979532	Ops Trng	Stanly County	NC	Relocate Communications and Electronics Training	0.02	1.00	0.00	0.00	0.00	0.09	0.00	1.00	0.00	0.1869
ACC	75	LKTC043103	Ops Trng	Indian Springs	NV	Security Forces Academics Facility	0.01	0.50	0.00	0.00	0.00	0.41	0.00	1.00	0.00	0.1844
ACC	82	YWHG999216	Utils Grnds	Whiteman	MO	North Land Acquisition	0.07	0.33	1.00	0.00	0.00	0.29	0.00	1.00	0.50	0.1842
ACC	47	RKMF043002	Ops Trng	Indian Springs	NV	Security Forces MOUT Complex	0.01	0.33	0.00	0.00	0.00	0.49	0.00	1.00	0.00	0.1718
ACC	62	HACC023018	Supply	Al Udeid		Covered Storage	0.10	0.33	0.00	0.00	0.00	0.43	0.00	1.00	0.00	0.1659
ACC	61	UHHZ033003	Supply	Robins	GA	Hazardous Material Storage Facility (93 ACW)	0.11	0.13	0.00	0.00	0.00	0.29	0.00	1.00	1.00	0.1636
ACC	55	HACC983001	Admin	Al Udeid		QAE/Contingency Flight Office	0.06	0.50	0.00	0.00	0.00	0.34	0.00	1.00	0.00	0.1610
ACC	78	LKTC043102	Cmty Spt	Indian Springs	NV	AEF Student Billeting/Dining Hall	0.02	0.33	0.00	0.00	0.00	0.36	0.00	1.00	0.00	0.1551
AMC	15	PTFL013010	Cmty Spt	Ft Dix (AMWC)	NJ	AMWC Visiting Quarters	0.03	0.20	0.00	0.00	0.00	0.36	0.00	1.00	0.00	0.1498

Appendix J – System Dynamics Equations for Proposed Model System

Corporate_Adjustments(t) = Corporate_Adjustments(t - dt) + (Tradeoff) * dt
INIT Corporate_Adjustments = 0
Tradeoff (Not in a sector)
Age_Factor[MAJCOM,Facility_Class] =
Avg_Age[MAJCOM,Facility_Class]/ARRAYMEAN(Avg_Age[*,*])
Avg_Age[ADW,OpsTrng] = 37.3
Avg_Age[ADW,MaintProd] = 26.6
Avg_Age[ADW,Admin] = 37.9
Avg_Age[ADW,RDTE] = 0
Avg_Age[ADW,Mobility] = 0
Avg_Age[ADW,Utilities] = 42.6
Avg_Age[ADW,Cmty] = 25.6
Avg_Age[ADW,Supply] = 29.6
Avg_Age[AFSOC,OpsTrng] = 30.5
Avg_Age[AFSOC,MaintProd] = 22.6
Avg_Age[AFSOC,Admin] = 26.5
Avg_Age[AFSOC,RDTE] = 26.8
Avg_Age[AFSOC,Mobility] = 19.8
Avg_Age[AFSOC,Utilities] = 26.4
Avg_Age[AFSOC,Cmty] = 23.5
Avg_Age[AFSOC,Supply] = 28.2
Avg_Age[USAFA,OpsTrng] = 22
Avg_Age[USAFA,MaintProd] = 26.6
Avg_Age[USAFA,Admin] = 36.5
Avg_Age[USAFA,RDTE] = 43
Avg_Age[USAFA,Mobility] = 0
Avg_Age[USAFA,Utilities] = 25.9
Avg_Age[USAFA,Cmty] = 39.4
Avg_Age[USAFA,Supply] = 26.5
Avg_Age[AETC,OpsTrng] = 31.8
Avg_Age[AETC,MaintProd] = 31.5
Avg_Age[AETC,Admin] = 36.4
Avg_Age[AETC,RDTE] = 21.2
Avg_Age[AETC,Mobility] = 40.1
Avg_Age[AETC,Utilities] = 33.3
Avg_Age[AETC,Cmty] = 37.1
Avg_Age[AETC,Supply] = 30.3
Avg_Age[ACC,OpsTrng] = 29.1
Avg_Age[ACC,MaintProd] = 27.7
Avg_Age[ACC,Admin] = 31.5
Avg_Age[ACC,RDTE] = 38.1
Avg_Age[ACC,Mobility] = 37.4

Avg_Age[ACC,Utilities] = 27.6
Avg_Age[ACC,Cmty] = 33.8
Avg_Age[ACC,Supply] = 28.1
Avg_Age[USAFE,OpsTrng] = 30.5
Avg_Age[USAFE,MaintProd] = 31.1
Avg_Age[USAFE,Admin] = 37
Avg_Age[USAFE,RDTE] = 28.5
Avg_Age[USAFE,Mobility] = 21.4
Avg_Age[USAFE,Utilities] = 27.9
Avg_Age[USAFE,Cmty] = 32.5
Avg_Age[USAFE,Supply] = 26.9
Avg_Age[PACAF,OpsTrng] = 30.6
Avg_Age[PACAF,MaintProd] = 30.4
Avg_Age[PACAF,Admin] = 33.3
Avg_Age[PACAF,RDTE] = 25.1
Avg_Age[PACAF,Mobility] = 34.7
Avg_Age[PACAF,Utilities] = 25.9
Avg_Age[PACAF,Cmty] = 31.8
Avg_Age[PACAF,Supply] = 30.8
Avg_Age[AFMC,OpsTrng] = 31.9
Avg_Age[AFMC,MaintProd] = 35.4
Avg_Age[AFMC,Admin] = 41.1
Avg_Age[AFMC,RDTE] = 35.6
Avg_Age[AFMC,Mobility] = 37.1
Avg_Age[AFMC,Utilities] = 31.5
Avg_Age[AFMC,Cmty] = 36
Avg_Age[AFMC,Supply] = 37.8
Avg_Age[AFSPC,OpsTrng] = 30.6
Avg_Age[AFSPC,MaintProd] = 33.9
Avg_Age[AFSPC,Admin] = 34.8
Avg_Age[AFSPC,RDTE] = 32.4
Avg_Age[AFSPC,Mobility] = 45.3
Avg_Age[AFSPC,Utilities] = 31.3
Avg_Age[AFSPC,Cmty] = 33.1
Avg_Age[AFSPC,Supply] = 33.3
Avg_Age[AMC,OpsTrng] = 33.7
Avg_Age[AMC,MaintProd] = 33.9
Avg_Age[AMC,Admin] = 40.1
Avg_Age[AMC,RDTE] = 51.9
Avg_Age[AMC,Mobility] = 28
Avg_Age[AMC,Utilities] = 29.7
Avg_Age[AMC,Cmty] = 33.3
Avg_Age[AMC,Supply] = 30.2
Avg_Age[ANG,OpsTrng] = 26.3
Avg_Age[ANG,MaintProd] = 27

Avg_Age[ANG,Admin] = 33.2
Avg_Age[ANG,RDTE] = 40.7
Avg_Age[ANG,Mobility] = 43
Avg_Age[ANG,Utilities] = 23.7
Avg_Age[ANG,Cmty] = 31.7
Avg_Age[ANG,Supply] = 25.3
Avg_Age[AFRC,OpsTrng] = 31.4
Avg_Age[AFRC,MaintProd] = 29.3
Avg_Age[AFRC,Admin] = 36.1
Avg_Age[AFRC,RDTE] = 46
Avg_Age[AFRC,Mobility] = 40.5
Avg_Age[AFRC,Utilities] = 32.2
Avg_Age[AFRC,Cmty] = 31.1
Avg_Age[AFRC,Supply] = 29
C3_C4_Target_Factor = 1
IRR_Results[MAJCOM,Facility_Class] = if C3_C4_Requirements[MAJCOM,Facility_Class]-1>0 then 1 else 0
Model_Effectiveness[MAJCOM,Facility_Class] = if ARRAYSUM(IRR_Results[*,*])= 0 then 0 else
Reduce_Model_Effectiveness/(ARRAYSUM(IRR_Results[*,*]))*IRR_Results[MAJCOM,Facility_Class]*Age_Factor[MAJCOM,Facility_Class]
Reduce_Model_Effectiveness = C3_C4_Target_Factor*(1-(Corporate_Adjustments/100))*MILCON_Funding
C1_C2_Plant_Value[ADW,OpsTrng](t) = C1_C2_Plant_Value[ADW,OpsTrng](t - dt) + (-Deterioration[ADW,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ADW,OpsTrng] = 24.6
C1_C2_Plant_Value[ADW,MaintProd](t) = C1_C2_Plant_Value[ADW,MaintProd](t - dt) + (-Deterioration[ADW,MaintProd]) * dt
INIT C1_C2_Plant_Value[ADW,MaintProd] = 8.7
C1_C2_Plant_Value[ADW,Admin](t) = C1_C2_Plant_Value[ADW,Admin](t - dt) + (-Deterioration[ADW,Admin]) * dt
INIT C1_C2_Plant_Value[ADW,Admin] = 47.5
C1_C2_Plant_Value[ADW,RDTE](t) = C1_C2_Plant_Value[ADW,RDTE](t - dt) + (-Deterioration[ADW,RDTE]) * dt
INIT C1_C2_Plant_Value[ADW,RDTE] = 0
C1_C2_Plant_Value[ADW,Mobility](t) = C1_C2_Plant_Value[ADW,Mobility](t - dt) + (-Deterioration[ADW,Mobility]) * dt
INIT C1_C2_Plant_Value[ADW,Mobility] = 0
C1_C2_Plant_Value[ADW,Utilities](t) = C1_C2_Plant_Value[ADW,Utilities](t - dt) + (-Deterioration[ADW,Utilities]) * dt
INIT C1_C2_Plant_Value[ADW,Utilities] = 358.4
C1_C2_Plant_Value[ADW,Cmty](t) = C1_C2_Plant_Value[ADW,Cmty](t - dt) + (-Deterioration[ADW,Cmty]) * dt
INIT C1_C2_Plant_Value[ADW,Cmty] = 43.5

C1_C2_Plant_Value[ADW,Supply](t) = C1_C2_Plant_Value[ADW,Supply](t - dt) + (-Deterioration[ADW,Supply]) * dt
INIT C1_C2_Plant_Value[ADW,Supply] = 3.6
C1_C2_Plant_Value[AFSOC,OpsTrng](t) = C1_C2_Plant_Value[AFSOC,OpsTrng](t - dt) + (-Deterioration[AFSOC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFSOC,OpsTrng] = 140.3
C1_C2_Plant_Value[AFSOC,MaintProd](t) = C1_C2_Plant_Value[AFSOC,MaintProd](t - dt) + (-Deterioration[AFSOC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFSOC,MaintProd] = 93.7
C1_C2_Plant_Value[AFSOC,Admin](t) = C1_C2_Plant_Value[AFSOC,Admin](t - dt) + (-Deterioration[AFSOC,Admin]) * dt
INIT C1_C2_Plant_Value[AFSOC,Admin] = 29.4
C1_C2_Plant_Value[AFSOC,RDTE](t) = C1_C2_Plant_Value[AFSOC,RDTE](t - dt) + (-Deterioration[AFSOC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFSOC,RDTE] = 1.2
C1_C2_Plant_Value[AFSOC,Mobility](t) = C1_C2_Plant_Value[AFSOC,Mobility](t - dt) + (-Deterioration[AFSOC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFSOC,Mobility] = 2.9
C1_C2_Plant_Value[AFSOC,Utilities](t) = C1_C2_Plant_Value[AFSOC,Utilities](t - dt) + (-Deterioration[AFSOC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFSOC,Utilities] = 216.5
C1_C2_Plant_Value[AFSOC,Cmty](t) = C1_C2_Plant_Value[AFSOC,Cmty](t - dt) + (-Deterioration[AFSOC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFSOC,Cmty] = 36
C1_C2_Plant_Value[AFSOC,Supply](t) = C1_C2_Plant_Value[AFSOC,Supply](t - dt) + (-Deterioration[AFSOC,Supply]) * dt
INIT C1_C2_Plant_Value[AFSOC,Supply] = 17.1
C1_C2_Plant_Value[USAFA,OpsTrng](t) = C1_C2_Plant_Value[USAFA,OpsTrng](t - dt) + (-Deterioration[USAFA,OpsTrng]) * dt
INIT C1_C2_Plant_Value[USAFA,OpsTrng] = 507.7
C1_C2_Plant_Value[USAFA,MaintProd](t) = C1_C2_Plant_Value[USAFA,MaintProd](t - dt) + (- Deterioration[USAFA,MaintProd]) * dt
INIT C1_C2_Plant_Value[USAFA,MaintProd] = 38.1
C1_C2_Plant_Value[USAFA,Admin](t) = C1_C2_Plant_Value[USAFA,Admin](t - dt) + (-Deterioration[USAFA,Admin]) * dt
INIT C1_C2_Plant_Value[USAFA,Admin] = 83.9
C1_C2_Plant_Value[USAFA,RDTE](t) = C1_C2_Plant_Value[USAFA,RDTE](t - dt) + (-Deterioration[USAFA,RDTE]) * dt
INIT C1_C2_Plant_Value[USAFA,RDTE] = 3
C1_C2_Plant_Value[USAFA,Mobility](t) = C1_C2_Plant_Value[USAFA,Mobility](t - dt) + (-Deterioration[USAFA,Mobility]) * dt
INIT C1_C2_Plant_Value[USAFA,Mobility] = 0
C1_C2_Plant_Value[USAFA,Utilities](t) = C1_C2_Plant_Value[USAFA,Utilities](t - dt) + (-Deterioration[USAFA,Utilities]) * dt
INIT C1_C2_Plant_Value[USAFA,Utilities] = 640.4

C1_C2_Plant_Value[USAFA,Cmty](t) = C1_C2_Plant_Value[USAFA,Cmty](t - dt) + (-Deterioration[USAFA,Cmty]) * dt
INIT C1_C2_Plant_Value[USAFA,Cmty] = 401.1
C1_C2_Plant_Value[USAFA,Supply](t) = C1_C2_Plant_Value[USAFA,Supply](t - dt) + (-Deterioration[USAFA,Supply]) * dt
INIT C1_C2_Plant_Value[USAFA,Supply] = 13.7
C1_C2_Plant_Value[AETC,OpsTrng](t) = C1_C2_Plant_Value[AETC,OpsTrng](t - dt) + (-Deterioration[AETC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AETC,OpsTrng] = 3274
C1_C2_Plant_Value[AETC,MaintProd](t) = C1_C2_Plant_Value[AETC,MaintProd](t - dt) + (-Deterioration[AETC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AETC,MaintProd] = 764.5
C1_C2_Plant_Value[AETC,Admin](t) = C1_C2_Plant_Value[AETC,Admin](t - dt) + (-Deterioration[AETC,Admin]) * dt
INIT C1_C2_Plant_Value[AETC,Admin] = 694.9
C1_C2_Plant_Value[AETC,RDTE](t) = C1_C2_Plant_Value[AETC,RDTE](t - dt) + (-Deterioration[AETC,RDTE]) * dt
INIT C1_C2_Plant_Value[AETC,RDTE] = 16.4
C1_C2_Plant_Value[AETC,Mobility](t) = C1_C2_Plant_Value[AETC,Mobility](t - dt) + (-Deterioration[AETC,Mobility]) * dt
INIT C1_C2_Plant_Value[AETC,Mobility] = 21.7
C1_C2_Plant_Value[AETC,Utilities](t) = C1_C2_Plant_Value[AETC,Utilities](t - dt) + (-Deterioration[AETC,Utilities]) * dt
INIT C1_C2_Plant_Value[AETC,Utilities] = 4227.9
C1_C2_Plant_Value[AETC,Cmty](t) = C1_C2_Plant_Value[AETC,Cmty](t - dt) + (-Deterioration[AETC,Cmty]) * dt
INIT C1_C2_Plant_Value[AETC,Cmty] = 884.7
C1_C2_Plant_Value[AETC,Supply](t) = C1_C2_Plant_Value[AETC,Supply](t - dt) + (-Deterioration[AETC,Supply]) * dt
INIT C1_C2_Plant_Value[AETC,Supply] = 233.6
C1_C2_Plant_Value[ACC,OpsTrng](t) = C1_C2_Plant_Value[ACC,OpsTrng](t - dt) + (-Deterioration[ACC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ACC,OpsTrng] = 4801.7
C1_C2_Plant_Value[ACC,MaintProd](t) = C1_C2_Plant_Value[ACC,MaintProd](t - dt) + (-Deterioration[ACC,MaintProd]) * dt
INIT C1_C2_Plant_Value[ACC,MaintProd] = 2055.6
C1_C2_Plant_Value[ACC,Admin](t) = C1_C2_Plant_Value[ACC,Admin](t - dt) + (-Deterioration[ACC,Admin]) * dt
INIT C1_C2_Plant_Value[ACC,Admin] = 1104.9
C1_C2_Plant_Value[ACC,RDTE](t) = C1_C2_Plant_Value[ACC,RDTE](t - dt) + (-Deterioration[ACC,RDTE]) * dt
INIT C1_C2_Plant_Value[ACC,RDTE] = 25.3
C1_C2_Plant_Value[ACC,Mobility](t) = C1_C2_Plant_Value[ACC,Mobility](t - dt) + (-Deterioration[ACC,Mobility]) * dt
INIT C1_C2_Plant_Value[ACC,Mobility] = 21.4

C1_C2_Plant_Value[ACC,Utilities](t) = C1_C2_Plant_Value[ACC,Utilities](t - dt) + (-Deterioration[ACC,Utilities]) * dt
INIT C1_C2_Plant_Value[ACC,Utilities] = 6876.9
C1_C2_Plant_Value[ACC,Cmty](t) = C1_C2_Plant_Value[ACC,Cmty](t - dt) + (-Deterioration[ACC,Cmty]) * dt
INIT C1_C2_Plant_Value[ACC,Cmty] = 1034.4
C1_C2_Plant_Value[ACC,Supply](t) = C1_C2_Plant_Value[ACC,Supply](t - dt) + (-Deterioration[ACC,Supply]) * dt
INIT C1_C2_Plant_Value[ACC,Supply] = 744.9
C1_C2_Plant_Value[USAFE,OpsTrng](t) = C1_C2_Plant_Value[USAFE,OpsTrng](t - dt) + (-Deterioration[USAFE,OpsTrng]) * dt
INIT C1_C2_Plant_Value[USAFE,OpsTrng] = 2580
C1_C2_Plant_Value[USAFE,MaintProd](t) = C1_C2_Plant_Value[USAFE,MaintProd](t - dt) + (-Deterioration[USAFE,MaintProd]) * dt
INIT C1_C2_Plant_Value[USAFE,MaintProd] = 643.1
C1_C2_Plant_Value[USAFE,Admin](t) = C1_C2_Plant_Value[USAFE,Admin](t - dt) + (-Deterioration[USAFE,Admin]) * dt
INIT C1_C2_Plant_Value[USAFE,Admin] = 574.2
C1_C2_Plant_Value[USAFE,RDTE](t) = C1_C2_Plant_Value[USAFE,RDTE](t - dt) + (-Deterioration[USAFE,RDTE]) * dt
INIT C1_C2_Plant_Value[USAFE,RDTE] = 0
C1_C2_Plant_Value[USAFE,Mobility](t) = C1_C2_Plant_Value[USAFE,Mobility](t - dt) + (-Deterioration[USAFE,Mobility]) * dt
INIT C1_C2_Plant_Value[USAFE,Mobility] = 14.9
C1_C2_Plant_Value[USAFE,Utilities](t) = C1_C2_Plant_Value[USAFE,Utilities](t - dt) + (-Deterioration[USAFE,Utilities]) * dt
INIT C1_C2_Plant_Value[USAFE,Utilities] = 1931.9
C1_C2_Plant_Value[USAFE,Cmty](t) = C1_C2_Plant_Value[USAFE,Cmty](t - dt) + (-Deterioration[USAFE,Cmty]) * dt
INIT C1_C2_Plant_Value[USAFE,Cmty] = 1484.4
C1_C2_Plant_Value[USAFE,Supply](t) = C1_C2_Plant_Value[USAFE,Supply](t - dt) + (-Deterioration[USAFE,Supply]) * dt
INIT C1_C2_Plant_Value[USAFE,Supply] = 488.8
C1_C2_Plant_Value[PACAF,OpsTrng](t) = C1_C2_Plant_Value[PACAF,OpsTrng](t - dt) + (-Deterioration[PACAF,OpsTrng]) * dt
INIT C1_C2_Plant_Value[PACAF,OpsTrng] = 3152.5
C1_C2_Plant_Value[PACAF,MaintProd](t) = C1_C2_Plant_Value[PACAF,MaintProd](t - dt) + (-Deterioration[PACAF,MaintProd]) * dt
INIT C1_C2_Plant_Value[PACAF,MaintProd] = 1050.5
C1_C2_Plant_Value[PACAF,Admin](t) = C1_C2_Plant_Value[PACAF,Admin](t - dt) + (-Deterioration[PACAF,Admin]) * dt
INIT C1_C2_Plant_Value[PACAF,Admin] = 633.7
C1_C2_Plant_Value[PACAF,RDTE](t) = C1_C2_Plant_Value[PACAF,RDTE](t - dt) + (-Deterioration[PACAF,RDTE]) * dt
INIT C1_C2_Plant_Value[PACAF,RDTE] = 9.8

C1_C2_Plant_Value[PACAF,Mobility](t) = C1_C2_Plant_Value[PACAF,Mobility](t - dt) + (-Deterioration[PACAF,Mobility]) * dt
INIT C1_C2_Plant_Value[PACAF,Mobility] = 58.4
C1_C2_Plant_Value[PACAF,Utilities](t) = C1_C2_Plant_Value[PACAF,Utilities](t - dt) + (-Deterioration[PACAF,Utilities]) * dt
INIT C1_C2_Plant_Value[PACAF,Utilities] = 5513.6
C1_C2_Plant_Value[PACAF,Cmty](t) = C1_C2_Plant_Value[PACAF,Cmty](t - dt) + (-Deterioration[PACAF,Cmty]) * dt
INIT C1_C2_Plant_Value[PACAF,Cmty] = 1800.4
C1_C2_Plant_Value[PACAF,Supply](t) = C1_C2_Plant_Value[PACAF,Supply](t - dt) + (-Deterioration[PACAF,Supply]) * dt
INIT C1_C2_Plant_Value[PACAF,Supply] = 877.3
C1_C2_Plant_Value[AFMC,OpsTrng](t) = C1_C2_Plant_Value[AFMC,OpsTrng](t - dt) + (-Deterioration[AFMC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFMC,OpsTrng] = 2606.4
C1_C2_Plant_Value[AFMC,MaintProd](t) = C1_C2_Plant_Value[AFMC,MaintProd](t - dt) + (-Deterioration[AFMC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFMC,MaintProd] = 2093.3
C1_C2_Plant_Value[AFMC,Admin](t) = C1_C2_Plant_Value[AFMC,Admin](t - dt) + (-Deterioration[AFMC,Admin]) * dt
INIT C1_C2_Plant_Value[AFMC,Admin] = 1518.9
C1_C2_Plant_Value[AFMC,RDTE](t) = C1_C2_Plant_Value[AFMC,RDTE](t - dt) + (-Deterioration[AFMC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFMC,RDTE] = 8458.4
C1_C2_Plant_Value[AFMC,Mobility](t) = C1_C2_Plant_Value[AFMC,Mobility](t - dt) + (-Deterioration[AFMC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFMC,Mobility] = 71.2
C1_C2_Plant_Value[AFMC,Utilities](t) = C1_C2_Plant_Value[AFMC,Utilities](t - dt) + (-Deterioration[AFMC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFMC,Utilities] = 8936.8
C1_C2_Plant_Value[AFMC,Cmty](t) = C1_C2_Plant_Value[AFMC,Cmty](t - dt) + (-Deterioration[AFMC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFMC,Cmty] = 624.2
C1_C2_Plant_Value[AFMC,Supply](t) = C1_C2_Plant_Value[AFMC,Supply](t - dt) + (-Deterioration[AFMC,Supply]) * dt
INIT C1_C2_Plant_Value[AFMC,Supply] = 632.9
C1_C2_Plant_Value[AFSPC,OpsTrng](t) = C1_C2_Plant_Value[AFSPC,OpsTrng](t - dt) + (-Deterioration[AFSPC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFSPC,OpsTrng] = 2952.2
C1_C2_Plant_Value[AFSPC,MaintProd](t) = C1_C2_Plant_Value[AFSPC,MaintProd](t - dt) + (-Deterioration[AFSPC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFSPC,MaintProd] = 579.7
C1_C2_Plant_Value[AFSPC,Admin](t) = C1_C2_Plant_Value[AFSPC,Admin](t - dt) + (-Deterioration[AFSPC,Admin]) * dt
INIT C1_C2_Plant_Value[AFSPC,Admin] = 583.2

C1_C2_Plant_Value[AFSPC,RDTE](t) = C1_C2_Plant_Value[AFSPC,RDTE](t - dt) + (-Deterioration[AFSPC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFSPC,RDTE] = 2366.8
C1_C2_Plant_Value[AFSPC,Mobility](t) = C1_C2_Plant_Value[AFSPC,Mobility](t - dt) + (-Deterioration[AFSPC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFSPC,Mobility] = 20.7
C1_C2_Plant_Value[AFSPC,Utilities](t) = C1_C2_Plant_Value[AFSPC,Utilities](t - dt) + (-Deterioration[AFSPC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFSPC,Utilities] = 4940.0
C1_C2_Plant_Value[AFSPC,Cmty](t) = C1_C2_Plant_Value[AFSPC,Cmty](t - dt) + (-Deterioration[AFSPC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFSPC,Cmty] = 613.5
C1_C2_Plant_Value[AFSPC,Supply](t) = C1_C2_Plant_Value[AFSPC,Supply](t - dt) + (-Deterioration[AFSPC,Supply]) * dt
INIT C1_C2_Plant_Value[AFSPC,Supply] = 378
C1_C2_Plant_Value[AMC,OpsTrng](t) = C1_C2_Plant_Value[AMC,OpsTrng](t - dt) + (-Deterioration[AMC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AMC,OpsTrng] = 4061.9
C1_C2_Plant_Value[AMC,MaintProd](t) = C1_C2_Plant_Value[AMC,MaintProd](t - dt) + (-Deterioration[AMC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AMC,MaintProd] = 1725
C1_C2_Plant_Value[AMC,Admin](t) = C1_C2_Plant_Value[AMC,Admin](t - dt) + (-Deterioration[AMC,Admin]) * dt
INIT C1_C2_Plant_Value[AMC,Admin] = 913.8
C1_C2_Plant_Value[AMC,RDTE](t) = C1_C2_Plant_Value[AMC,RDTE](t - dt) + (-Deterioration[AMC,RDTE]) * dt
INIT C1_C2_Plant_Value[AMC,RDTE] = 0
C1_C2_Plant_Value[AMC,Mobility](t) = C1_C2_Plant_Value[AMC,Mobility](t - dt) + (-Deterioration[AMC,Mobility]) * dt
INIT C1_C2_Plant_Value[AMC,Mobility] = 342.2
C1_C2_Plant_Value[AMC,Utilities](t) = C1_C2_Plant_Value[AMC,Utilities](t - dt) + (-Deterioration[AMC,Utilities]) * dt
INIT C1_C2_Plant_Value[AMC,Utilities] = 4477.5
C1_C2_Plant_Value[AMC,Cmty](t) = C1_C2_Plant_Value[AMC,Cmty](t - dt) + (-Deterioration[AMC,Cmty]) * dt
INIT C1_C2_Plant_Value[AMC,Cmty] = 681.2
C1_C2_Plant_Value[AMC,Supply](t) = C1_C2_Plant_Value[AMC,Supply](t - dt) + (-Deterioration[AMC,Supply]) * dt
INIT C1_C2_Plant_Value[AMC,Supply] = 353.2
C1_C2_Plant_Value[ANG,OpsTrng](t) = C1_C2_Plant_Value[ANG,OpsTrng](t - dt) + (-Deterioration[ANG,OpsTrng]) * dt
INIT C1_C2_Plant_Value[ANG,OpsTrng] = 2848.1
C1_C2_Plant_Value[ANG,MaintProd](t) = C1_C2_Plant_Value[ANG,MaintProd](t - dt) + (-Deterioration[ANG,MaintProd]) * dt
INIT C1_C2_Plant_Value[ANG,MaintProd] = 2143.1

C1_C2_Plant_Value[ANG,Admin](t) = C1_C2_Plant_Value[ANG,Admin](t - dt) + (-Deterioration[ANG,Admin]) * dt
INIT C1_C2_Plant_Value[ANG,Admin] = 313.5
C1_C2_Plant_Value[ANG,RDTE](t) = C1_C2_Plant_Value[ANG,RDTE](t - dt) + (-Deterioration[ANG,RDTE]) * dt
INIT C1_C2_Plant_Value[ANG,RDTE] = 0
C1_C2_Plant_Value[ANG,Mobility](t) = C1_C2_Plant_Value[ANG,Mobility](t - dt) + (-Deterioration[ANG,Mobility]) * dt
INIT C1_C2_Plant_Value[ANG,Mobility] = 2.6
C1_C2_Plant_Value[ANG,Utilities](t) = C1_C2_Plant_Value[ANG,Utilities](t - dt) + (-Deterioration[ANG,Utilities]) * dt
INIT C1_C2_Plant_Value[ANG,Utilities] = 1760.7
C1_C2_Plant_Value[ANG,Cmty](t) = C1_C2_Plant_Value[ANG,Cmty](t - dt) + (-Deterioration[ANG,Cmty]) * dt
INIT C1_C2_Plant_Value[ANG,Cmty] = 344.4
C1_C2_Plant_Value[ANG,Supply](t) = C1_C2_Plant_Value[ANG,Supply](t - dt) + (-Deterioration[ANG,Supply]) * dt
INIT C1_C2_Plant_Value[ANG,Supply] = 372.8
C1_C2_Plant_Value[AFRC,OpsTrng](t) = C1_C2_Plant_Value[AFRC,OpsTrng](t - dt) + (-Deterioration[AFRC,OpsTrng]) * dt
INIT C1_C2_Plant_Value[AFRC,OpsTrng] = 1775.2
C1_C2_Plant_Value[AFRC,MaintProd](t) = C1_C2_Plant_Value[AFRC,MaintProd](t - dt) + (-Deterioration[AFRC,MaintProd]) * dt
INIT C1_C2_Plant_Value[AFRC,MaintProd] = 833.4
C1_C2_Plant_Value[AFRC,Admin](t) = C1_C2_Plant_Value[AFRC,Admin](t - dt) + (-Deterioration[AFRC,Admin]) * dt
INIT C1_C2_Plant_Value[AFRC,Admin] = 187.7
C1_C2_Plant_Value[AFRC,RDTE](t) = C1_C2_Plant_Value[AFRC,RDTE](t - dt) + (-Deterioration[AFRC,RDTE]) * dt
INIT C1_C2_Plant_Value[AFRC,RDTE] = 35.1
C1_C2_Plant_Value[AFRC,Mobility](t) = C1_C2_Plant_Value[AFRC,Mobility](t - dt) + (-Deterioration[AFRC,Mobility]) * dt
INIT C1_C2_Plant_Value[AFRC,Mobility] = 6.1
C1_C2_Plant_Value[AFRC,Utilities](t) = C1_C2_Plant_Value[AFRC,Utilities](t - dt) + (-Deterioration[AFRC,Utilities]) * dt
INIT C1_C2_Plant_Value[AFRC,Utilities] = 961.8
C1_C2_Plant_Value[AFRC,Cmty](t) = C1_C2_Plant_Value[AFRC,Cmty](t - dt) + (-Deterioration[AFRC,Cmty]) * dt
INIT C1_C2_Plant_Value[AFRC,Cmty] = 278.4
C1_C2_Plant_Value[AFRC,Supply](t) = C1_C2_Plant_Value[AFRC,Supply](t - dt) + (-Deterioration[AFRC,Supply]) * dt
INIT C1_C2_Plant_Value[AFRC,Supply] = 161.3
Deterioration[MAJCOM,Facility_Class] = C1_C2_Plant_Value[MAJCOM,Facility_Class]/Recap_Years*Percent_MAJCOM_PRV[MAJCOM]*Deterioration_Enabled

C3_C4_Requirements[ADW,OpsTrng](t) = C3_C4_Requirements[ADW,OpsTrng](t - dt) + (Deterioration[ADW,OpsTrng] - Revitalization[ADW,OpsTrng]) * dt
INIT C3_C4_Requirements[ADW,OpsTrng] = 0
C3_C4_Requirements[ADW,MaintProd](t) = C3_C4_Requirements[ADW,MaintProd](t - dt) + (Deterioration[ADW,MaintProd] - Revitalization[ADW,MaintProd]) * dt
INIT C3_C4_Requirements[ADW,MaintProd] = 3.8
C3_C4_Requirements[ADW,Admin](t) = C3_C4_Requirements[ADW,Admin](t - dt) + (Deterioration[ADW,Admin] - Revitalization[ADW,Admin]) * dt
INIT C3_C4_Requirements[ADW,Admin] = 0
C3_C4_Requirements[ADW,RDTE](t) = C3_C4_Requirements[ADW,RDTE](t - dt) + (Deterioration[ADW,RDTE] - Revitalization[ADW,RDTE]) * dt
INIT C3_C4_Requirements[ADW,RDTE] = 0
C3_C4_Requirements[ADW,Mobility](t) = C3_C4_Requirements[ADW,Mobility](t - dt) + (Deterioration[ADW,Mobility] - Revitalization[ADW,Mobility]) * dt
INIT C3_C4_Requirements[ADW,Mobility] = 0
C3_C4_Requirements[ADW,Utilities](t) = C3_C4_Requirements[ADW,Utilities](t - dt) + (Deterioration[ADW,Utilities] - Revitalization[ADW,Utilities]) * dt
INIT C3_C4_Requirements[ADW,Utilities] = 0
C3_C4_Requirements[ADW,Cmty](t) = C3_C4_Requirements[ADW,Cmty](t - dt) + (Deterioration[ADW,Cmty] - Revitalization[ADW,Cmty]) * dt
INIT C3_C4_Requirements[ADW,Cmty] = 5
C3_C4_Requirements[ADW,Supply](t) = C3_C4_Requirements[ADW,Supply](t - dt) + (Deterioration[ADW,Supply] - Revitalization[ADW,Supply]) * dt
INIT C3_C4_Requirements[ADW,Supply] = 0
C3_C4_Requirements[AFSOC,OpsTrng](t) = C3_C4_Requirements[AFSOC,OpsTrng](t - dt) + (Deterioration[AFSOC,OpsTrng] - Revitalization[AFSOC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFSOC,OpsTrng] = 27.9
C3_C4_Requirements[AFSOC,MaintProd](t) = C3_C4_Requirements[AFSOC,MaintProd](t - dt) + (Deterioration[AFSOC,MaintProd] - Revitalization[AFSOC,MaintProd]) * dt
INIT C3_C4_Requirements[AFSOC,MaintProd] = 0
C3_C4_Requirements[AFSOC,Admin](t) = C3_C4_Requirements[AFSOC,Admin](t - dt) + (Deterioration[AFSOC,Admin] - Revitalization[AFSOC,Admin]) * dt
INIT C3_C4_Requirements[AFSOC,Admin] = 24.3
C3_C4_Requirements[AFSOC,RDTE](t) = C3_C4_Requirements[AFSOC,RDTE](t - dt) + (Deterioration[AFSOC,RDTE] - Revitalization[AFSOC,RDTE]) * dt
INIT C3_C4_Requirements[AFSOC,RDTE] = 0
C3_C4_Requirements[AFSOC,Mobility](t) = C3_C4_Requirements[AFSOC,Mobility](t - dt) + (Deterioration[AFSOC,Mobility] - Revitalization[AFSOC,Mobility]) * dt
INIT C3_C4_Requirements[AFSOC,Mobility] = 0
C3_C4_Requirements[AFSOC,Utilities](t) = C3_C4_Requirements[AFSOC,Utilities](t - dt) + (Deterioration[AFSOC,Utilities] - Revitalization[AFSOC,Utilities]) * dt
INIT C3_C4_Requirements[AFSOC,Utilities] = 0
C3_C4_Requirements[AFSOC,Cmty](t) = C3_C4_Requirements[AFSOC,Cmty](t - dt) + (Deterioration[AFSOC,Cmty] - Revitalization[AFSOC,Cmty]) * dt
INIT C3_C4_Requirements[AFSOC,Cmty] = 8.2

C3_C4_Requirements[AFSOC,Supply](t) = C3_C4_Requirements[AFSOC,Supply](t - dt) + (Deterioration[AFSOC,Supply] - Revitalization[AFSOC,Supply]) * dt
INIT C3_C4_Requirements[AFSOC,Supply] = 3.1
C3_C4_Requirements[USAFA,OpsTrng](t) = C3_C4_Requirements[USAFA,OpsTrng](t - dt) + (Deterioration[USAFA,OpsTrng] - Revitalization[USAFA,OpsTrng]) * dt
INIT C3_C4_Requirements[USAFA,OpsTrng] = 17.8
C3_C4_Requirements[USAFA,MaintProd](t) = C3_C4_Requirements[USAFA,MaintProd](t - dt) + (Deterioration[USAFA,MaintProd] - Revitalization[USAFA,MaintProd]) * dt
INIT C3_C4_Requirements[USAFA,MaintProd] = 0
C3_C4_Requirements[USAFA,Admin](t) = C3_C4_Requirements[USAFA,Admin](t - dt) + (Deterioration[USAFA,Admin] - Revitalization[USAFA,Admin]) * dt
INIT C3_C4_Requirements[USAFA,Admin] = 0
C3_C4_Requirements[USAFA,RDTE](t) = C3_C4_Requirements[USAFA,RDTE](t - dt) + (Deterioration[USAFA,RDTE] - Revitalization[USAFA,RDTE]) * dt
INIT C3_C4_Requirements[USAFA,RDTE] = 0
C3_C4_Requirements[USAFA,Mobility](t) = C3_C4_Requirements[USAFA,Mobility](t - dt) + (Deterioration[USAFA,Mobility] - Revitalization[USAFA,Mobility]) * dt
INIT C3_C4_Requirements[USAFA,Mobility] = 0
C3_C4_Requirements[USAFA,Utilities](t) = C3_C4_Requirements[USAFA,Utilities](t - dt) + (Deterioration[USAFA,Utilities] - Revitalization[USAFA,Utilities]) * dt
INIT C3_C4_Requirements[USAFA,Utilities] = 7.6
C3_C4_Requirements[USAFA,Cmty](t) = C3_C4_Requirements[USAFA,Cmty](t - dt) + (Deterioration[USAFA,Cmty] - Revitalization[USAFA,Cmty]) * dt
INIT C3_C4_Requirements[USAFA,Cmty] = 0
C3_C4_Requirements[USAFA,Supply](t) = C3_C4_Requirements[USAFA,Supply](t - dt) + (Deterioration[USAFA,Supply] - Revitalization[USAFA,Supply]) * dt
INIT C3_C4_Requirements[USAFA,Supply] = 0
C3_C4_Requirements[AETC,OpsTrng](t) = C3_C4_Requirements[AETC,OpsTrng](t - dt) + (Deterioration[AETC,OpsTrng] - Revitalization[AETC,OpsTrng]) * dt
INIT C3_C4_Requirements[AETC,OpsTrng] = 250
C3_C4_Requirements[AETC,MaintProd](t) = C3_C4_Requirements[AETC,MaintProd](t - dt) + (Deterioration[AETC,MaintProd] - Revitalization[AETC,MaintProd]) * dt
INIT C3_C4_Requirements[AETC,MaintProd] = 154.8
C3_C4_Requirements[AETC,Admin](t) = C3_C4_Requirements[AETC,Admin](t - dt) + (Deterioration[AETC,Admin] - Revitalization[AETC,Admin]) * dt
INIT C3_C4_Requirements[AETC,Admin] = 51.9
C3_C4_Requirements[AETC,RDTE](t) = C3_C4_Requirements[AETC,RDTE](t - dt) + (Deterioration[AETC,RDTE] - Revitalization[AETC,RDTE]) * dt
INIT C3_C4_Requirements[AETC,RDTE] = 0
C3_C4_Requirements[AETC,Mobility](t) = C3_C4_Requirements[AETC,Mobility](t - dt) + (Deterioration[AETC,Mobility] - Revitalization[AETC,Mobility]) * dt
INIT C3_C4_Requirements[AETC,Mobility] = 12
C3_C4_Requirements[AETC,Utilities](t) = C3_C4_Requirements[AETC,Utilities](t - dt) + (Deterioration[AETC,Utilities] - Revitalization[AETC,Utilities]) * dt
INIT C3_C4_Requirements[AETC,Utilities] = 23.7

C3_C4_Requirements[AETC,Cmty](t) = C3_C4_Requirements[AETC,Cmty](t - dt) + (Deterioration[AETC,Cmty] - Revitalization[AETC,Cmty]) * dt
INIT C3_C4_Requirements[AETC,Cmty] = 267.8
C3_C4_Requirements[AETC,Supply](t) = C3_C4_Requirements[AETC,Supply](t - dt) + (Deterioration[AETC,Supply] - Revitalization[AETC,Supply]) * dt
INIT C3_C4_Requirements[AETC,Supply] = 26.9
C3_C4_Requirements[ACC,OpsTrng](t) = C3_C4_Requirements[ACC,OpsTrng](t - dt) + (Deterioration[ACC,OpsTrng] - Revitalization[ACC,OpsTrng]) * dt
INIT C3_C4_Requirements[ACC,OpsTrng] = 221.2
C3_C4_Requirements[ACC,MaintProd](t) = C3_C4_Requirements[ACC,MaintProd](t - dt) + (Deterioration[ACC,MaintProd] - Revitalization[ACC,MaintProd]) * dt
INIT C3_C4_Requirements[ACC,MaintProd] = 254.6
C3_C4_Requirements[ACC,Admin](t) = C3_C4_Requirements[ACC,Admin](t - dt) + (Deterioration[ACC,Admin] - Revitalization[ACC,Admin]) * dt
INIT C3_C4_Requirements[ACC,Admin] = 55.6
C3_C4_Requirements[ACC,RDTE](t) = C3_C4_Requirements[ACC,RDTE](t - dt) + (Deterioration[ACC,RDTE] - Revitalization[ACC,RDTE]) * dt
INIT C3_C4_Requirements[ACC,RDTE] = 0
C3_C4_Requirements[ACC,Mobility](t) = C3_C4_Requirements[ACC,Mobility](t - dt) + (Deterioration[ACC,Mobility] - Revitalization[ACC,Mobility]) * dt
INIT C3_C4_Requirements[ACC,Mobility] = 20.7
C3_C4_Requirements[ACC,Utilities](t) = C3_C4_Requirements[ACC,Utilities](t - dt) + (Deterioration[ACC,Utilities] - Revitalization[ACC,Utilities]) * dt
INIT C3_C4_Requirements[ACC,Utilities] = 11
C3_C4_Requirements[ACC,Cmty](t) = C3_C4_Requirements[ACC,Cmty](t - dt) + (Deterioration[ACC,Cmty] - Revitalization[ACC,Cmty]) * dt
INIT C3_C4_Requirements[ACC,Cmty] = 211.6
C3_C4_Requirements[ACC,Supply](t) = C3_C4_Requirements[ACC,Supply](t - dt) + (Deterioration[ACC,Supply] - Revitalization[ACC,Supply]) * dt
INIT C3_C4_Requirements[ACC,Supply] = 48.7
C3_C4_Requirements[USAFE,OpsTrng](t) = C3_C4_Requirements[USAFE,OpsTrng](t - dt) + (Deterioration[USAFE,OpsTrng] - Revitalization[USAFE,OpsTrng]) * dt
INIT C3_C4_Requirements[USAFE,OpsTrng] = 152.7
C3_C4_Requirements[USAFE,MaintProd](t) = C3_C4_Requirements[USAFE,MaintProd](t - dt) + (Deterioration[USAFE,MaintProd] - Revitalization[USAFE,MaintProd]) * dt
INIT C3_C4_Requirements[USAFE,MaintProd] = 136.2
C3_C4_Requirements[USAFE,Admin](t) = C3_C4_Requirements[USAFE,Admin](t - dt) + (Deterioration[USAFE,Admin] - Revitalization[USAFE,Admin]) * dt
INIT C3_C4_Requirements[USAFE,Admin] = 68.1
C3_C4_Requirements[USAFE,RDTE](t) = C3_C4_Requirements[USAFE,RDTE](t - dt) + (Deterioration[USAFE,RDTE] - Revitalization[USAFE,RDTE]) * dt
INIT C3_C4_Requirements[USAFE,RDTE] = 0
C3_C4_Requirements[USAFE,Mobility](t) = C3_C4_Requirements[USAFE,Mobility](t - dt) + (Deterioration[USAFE,Mobility] - Revitalization[USAFE,Mobility]) * dt
INIT C3_C4_Requirements[USAFE,Mobility] = 70.3

C3_C4_Requirements[USAFE,Utilities](t) = C3_C4_Requirements[USAFE,Utilities](t - dt) + (Deterioration[USAFE,Utilities] - Revitalization[USAFE,Utilities]) * dt
INIT C3_C4_Requirements[USAFE,Utilities] = 23.4
C3_C4_Requirements[USAFE,Cmty](t) = C3_C4_Requirements[USAFE,Cmty](t - dt) + (Deterioration[USAFE,Cmty] - Revitalization[USAFE,Cmty]) * dt
INIT C3_C4_Requirements[USAFE,Cmty] = 127.4
C3_C4_Requirements[USAFE,Supply](t) = C3_C4_Requirements[USAFE,Supply](t - dt) + (Deterioration[USAFE,Supply] - Revitalization[USAFE,Supply]) * dt
INIT C3_C4_Requirements[USAFE,Supply] = 58.3
C3_C4_Requirements[PACAF,OpsTrng](t) = C3_C4_Requirements[PACAF,OpsTrng](t - dt) + (Deterioration[PACAF,OpsTrng] - Revitalization[PACAF,OpsTrng]) * dt
INIT C3_C4_Requirements[PACAF,OpsTrng] = 411.2
C3_C4_Requirements[PACAF,MaintProd](t) = C3_C4_Requirements[PACAF,MaintProd](t - dt) + (Deterioration[PACAF,MaintProd] - Revitalization[PACAF,MaintProd]) * dt
INIT C3_C4_Requirements[PACAF,MaintProd] = 207.2
C3_C4_Requirements[PACAF,Admin](t) = C3_C4_Requirements[PACAF,Admin](t - dt) + (Deterioration[PACAF,Admin] - Revitalization[PACAF,Admin]) * dt
INIT C3_C4_Requirements[PACAF,Admin] = 193.7
C3_C4_Requirements[PACAF,RDTE](t) = C3_C4_Requirements[PACAF,RDTE](t - dt) + (Deterioration[PACAF,RDTE] - Revitalization[PACAF,RDTE]) * dt
INIT C3_C4_Requirements[PACAF,RDTE] = 0
C3_C4_Requirements[PACAF,Mobility](t) = C3_C4_Requirements[PACAF,Mobility](t - dt) + (Deterioration[PACAF,Mobility] - Revitalization[PACAF,Mobility]) * dt
INIT C3_C4_Requirements[PACAF,Mobility] = 54.5
C3_C4_Requirements[PACAF,Utilities](t) = C3_C4_Requirements[PACAF,Utilities](t - dt) + (Deterioration[PACAF,Utilities] - Revitalization[PACAF,Utilities]) * dt
INIT C3_C4_Requirements[PACAF,Utilities] = 244
C3_C4_Requirements[PACAF,Cmty](t) = C3_C4_Requirements[PACAF,Cmty](t - dt) + (Deterioration[PACAF,Cmty] - Revitalization[PACAF,Cmty]) * dt
INIT C3_C4_Requirements[PACAF,Cmty] = 269.9
C3_C4_Requirements[PACAF,Supply](t) = C3_C4_Requirements[PACAF,Supply](t - dt) + (Deterioration[PACAF,Supply] - Revitalization[PACAF,Supply]) * dt
INIT C3_C4_Requirements[PACAF,Supply] = 60.5
C3_C4_Requirements[AFMC,OpsTrng](t) = C3_C4_Requirements[AFMC,OpsTrng](t - dt) + (Deterioration[AFMC,OpsTrng] - Revitalization[AFMC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFMC,OpsTrng] = 139.7
C3_C4_Requirements[AFMC,MaintProd](t) = C3_C4_Requirements[AFMC,MaintProd](t - dt) + (Deterioration[AFMC,MaintProd] - Revitalization[AFMC,MaintProd]) * dt
INIT C3_C4_Requirements[AFMC,MaintProd] = 945.9
C3_C4_Requirements[AFMC,Admin](t) = C3_C4_Requirements[AFMC,Admin](t - dt) + (Deterioration[AFMC,Admin] - Revitalization[AFMC,Admin]) * dt
INIT C3_C4_Requirements[AFMC,Admin] = 55.9
C3_C4_Requirements[AFMC,RDTE](t) = C3_C4_Requirements[AFMC,RDTE](t - dt) + (Deterioration[AFMC,RDTE] - Revitalization[AFMC,RDTE]) * dt
INIT C3_C4_Requirements[AFMC,RDTE] = 328

C3_C4_Requirements[AFMC,Mobility](t) = C3_C4_Requirements[AFMC,Mobility](t - dt) + (Deterioration[AFMC,Mobility] - Revitalization[AFMC,Mobility]) * dt
INIT C3_C4_Requirements[AFMC,Mobility] = 0
C3_C4_Requirements[AFMC,Utilities](t) = C3_C4_Requirements[AFMC,Utilities](t - dt) + (Deterioration[AFMC,Utilities] - Revitalization[AFMC,Utilities]) * dt
INIT C3_C4_Requirements[AFMC,Utilities] = 0
C3_C4_Requirements[AFMC,Cmty](t) = C3_C4_Requirements[AFMC,Cmty](t - dt) + (Deterioration[AFMC,Cmty] - Revitalization[AFMC,Cmty]) * dt
INIT C3_C4_Requirements[AFMC,Cmty] = 96.5
C3_C4_Requirements[AFMC,Supply](t) = C3_C4_Requirements[AFMC,Supply](t - dt) + (Deterioration[AFMC,Supply] - Revitalization[AFMC,Supply]) * dt
INIT C3_C4_Requirements[AFMC,Supply] = 10
C3_C4_Requirements[AFSPC,OpsTrng](t) = C3_C4_Requirements[AFSPC,OpsTrng](t - dt) + (Deterioration[AFSPC,OpsTrng] - Revitalization[AFSPC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFSPC,OpsTrng] = 15.4
C3_C4_Requirements[AFSPC,MaintProd](t) = C3_C4_Requirements[AFSPC,MaintProd](t - dt) + (Deterioration[AFSPC,MaintProd] - Revitalization[AFSPC,MaintProd]) * dt
INIT C3_C4_Requirements[AFSPC,MaintProd] = 39.5
C3_C4_Requirements[AFSPC,Admin](t) = C3_C4_Requirements[AFSPC,Admin](t - dt) + (Deterioration[AFSPC,Admin] - Revitalization[AFSPC,Admin]) * dt
INIT C3_C4_Requirements[AFSPC,Admin] = 90.9
C3_C4_Requirements[AFSPC,RDTE](t) = C3_C4_Requirements[AFSPC,RDTE](t - dt) + (Deterioration[AFSPC,RDTE] - Revitalization[AFSPC,RDTE]) * dt
INIT C3_C4_Requirements[AFSPC,RDTE] = 0
C3_C4_Requirements[AFSPC,Mobility](t) = C3_C4_Requirements[AFSPC,Mobility](t - dt) + (Deterioration[AFSPC,Mobility] - Revitalization[AFSPC,Mobility]) * dt
INIT C3_C4_Requirements[AFSPC,Mobility] = 8
C3_C4_Requirements[AFSPC,Utilities](t) = C3_C4_Requirements[AFSPC,Utilities](t - dt) + (Deterioration[AFSPC,Utilities] - Revitalization[AFSPC,Utilities]) * dt
INIT C3_C4_Requirements[AFSPC,Utilities] = 91.8
C3_C4_Requirements[AFSPC,Cmty](t) = C3_C4_Requirements[AFSPC,Cmty](t - dt) + (Deterioration[AFSPC,Cmty] - Revitalization[AFSPC,Cmty]) * dt
INIT C3_C4_Requirements[AFSPC,Cmty] = 177.3
C3_C4_Requirements[AFSPC,Supply](t) = C3_C4_Requirements[AFSPC,Supply](t - dt) + (Deterioration[AFSPC,Supply] - Revitalization[AFSPC,Supply]) * dt
INIT C3_C4_Requirements[AFSPC,Supply] = 32.7
C3_C4_Requirements[AMC,OpsTrng](t) = C3_C4_Requirements[AMC,OpsTrng](t - dt) + (Deterioration[AMC,OpsTrng] - Revitalization[AMC,OpsTrng]) * dt
INIT C3_C4_Requirements[AMC,OpsTrng] = 246.7
C3_C4_Requirements[AMC,MaintProd](t) = C3_C4_Requirements[AMC,MaintProd](t - dt) + (Deterioration[AMC,MaintProd] - Revitalization[AMC,MaintProd]) * dt
INIT C3_C4_Requirements[AMC,MaintProd] = 250.9
C3_C4_Requirements[AMC,Admin](t) = C3_C4_Requirements[AMC,Admin](t - dt) + (Deterioration[AMC,Admin] - Revitalization[AMC,Admin]) * dt
INIT C3_C4_Requirements[AMC,Admin] = 232.1

C3_C4_Requirements[AMC,RDTE](t) = C3_C4_Requirements[AMC,RDTE](t - dt) + (Deterioration[AMC,RDTE] - Revitalization[AMC,RDTE]) * dt
INIT C3_C4_Requirements[AMC,RDTE] = 0
C3_C4_Requirements[AMC,Mobility](t) = C3_C4_Requirements[AMC,Mobility](t - dt) + (Deterioration[AMC,Mobility] - Revitalization[AMC,Mobility]) * dt
INIT C3_C4_Requirements[AMC,Mobility] = 77.8
C3_C4_Requirements[AMC,Utilities](t) = C3_C4_Requirements[AMC,Utilities](t - dt) + (Deterioration[AMC,Utilities] - Revitalization[AMC,Utilities]) * dt
INIT C3_C4_Requirements[AMC,Utilities] = 155.1
C3_C4_Requirements[AMC,Cmty](t) = C3_C4_Requirements[AMC,Cmty](t - dt) + (Deterioration[AMC,Cmty] - Revitalization[AMC,Cmty]) * dt
INIT C3_C4_Requirements[AMC,Cmty] = 220.5
C3_C4_Requirements[AMC,Supply](t) = C3_C4_Requirements[AMC,Supply](t - dt) + (Deterioration[AMC,Supply] - Revitalization[AMC,Supply]) * dt
INIT C3_C4_Requirements[AMC,Supply] = 76.9
C3_C4_Requirements[ANG,OpsTrng](t) = C3_C4_Requirements[ANG,OpsTrng](t - dt) + (Deterioration[ANG,OpsTrng] - Revitalization[ANG,OpsTrng]) * dt
INIT C3_C4_Requirements[ANG,OpsTrng] = 1000.2
C3_C4_Requirements[ANG,MaintProd](t) = C3_C4_Requirements[ANG,MaintProd](t - dt) + (Deterioration[ANG,MaintProd] - Revitalization[ANG,MaintProd]) * dt
INIT C3_C4_Requirements[ANG,MaintProd] = 628
C3_C4_Requirements[ANG,Admin](t) = C3_C4_Requirements[ANG,Admin](t - dt) + (Deterioration[ANG,Admin] - Revitalization[ANG,Admin]) * dt
INIT C3_C4_Requirements[ANG,Admin] = 6
C3_C4_Requirements[ANG,RDTE](t) = C3_C4_Requirements[ANG,RDTE](t - dt) + (Deterioration[ANG,RDTE] - Revitalization[ANG,RDTE]) * dt
INIT C3_C4_Requirements[ANG,RDTE] = 0
C3_C4_Requirements[ANG,Mobility](t) = C3_C4_Requirements[ANG,Mobility](t - dt) + (Deterioration[ANG,Mobility] - Revitalization[ANG,Mobility]) * dt
INIT C3_C4_Requirements[ANG,Mobility] = 0
C3_C4_Requirements[ANG,Utilities](t) = C3_C4_Requirements[ANG,Utilities](t - dt) + (Deterioration[ANG,Utilities] - Revitalization[ANG,Utilities]) * dt
INIT C3_C4_Requirements[ANG,Utilities] = 46.1
C3_C4_Requirements[ANG,Cmty](t) = C3_C4_Requirements[ANG,Cmty](t - dt) + (Deterioration[ANG,Cmty] - Revitalization[ANG,Cmty]) * dt
INIT C3_C4_Requirements[ANG,Cmty] = 252.4
C3_C4_Requirements[ANG,Supply](t) = C3_C4_Requirements[ANG,Supply](t - dt) + (Deterioration[ANG,Supply] - Revitalization[ANG,Supply]) * dt
INIT C3_C4_Requirements[ANG,Supply] = 189.1
C3_C4_Requirements[AFRC,OpsTrng](t) = C3_C4_Requirements[AFRC,OpsTrng](t - dt) + (Deterioration[AFRC,OpsTrng] - Revitalization[AFRC,OpsTrng]) * dt
INIT C3_C4_Requirements[AFRC,OpsTrng] = 82.7
C3_C4_Requirements[AFRC,MaintProd](t) = C3_C4_Requirements[AFRC,MaintProd](t - dt) + (Deterioration[AFRC,MaintProd] - Revitalization[AFRC,MaintProd]) * dt
INIT C3_C4_Requirements[AFRC,MaintProd] = 48

C3_C4_Requirements[AFRC,Admin](t) = C3_C4_Requirements[AFRC,Admin](t - dt) + (Deterioration[AFRC,Admin] - Revitalization[AFRC,Admin]) * dt
INIT C3_C4_Requirements[AFRC,Admin] = 5.7
C3_C4_Requirements[AFRC,RDTE](t) = C3_C4_Requirements[AFRC,RDTE](t - dt) + (Deterioration[AFRC,RDTE] - Revitalization[AFRC,RDTE]) * dt
INIT C3_C4_Requirements[AFRC,RDTE] = 0
C3_C4_Requirements[AFRC,Mobility](t) = C3_C4_Requirements[AFRC,Mobility](t - dt) + (Deterioration[AFRC,Mobility] - Revitalization[AFRC,Mobility]) * dt
INIT C3_C4_Requirements[AFRC,Mobility] = 0
C3_C4_Requirements[AFRC,Utilities](t) = C3_C4_Requirements[AFRC,Utilities](t - dt) + (Deterioration[AFRC,Utilities] - Revitalization[AFRC,Utilities]) * dt
INIT C3_C4_Requirements[AFRC,Utilities] = 1.4
C3_C4_Requirements[AFRC,Cmty](t) = C3_C4_Requirements[AFRC,Cmty](t - dt) + (Deterioration[AFRC,Cmty] - Revitalization[AFRC,Cmty]) * dt
INIT C3_C4_Requirements[AFRC,Cmty] = 119.5
C3_C4_Requirements[AFRC,Supply](t) = C3_C4_Requirements[AFRC,Supply](t - dt) + (Deterioration[AFRC,Supply] - Revitalization[AFRC,Supply]) * dt
INIT C3_C4_Requirements[AFRC,Supply] = 22.2
Deterioration[MAJCOM,Facility_Class] = C1_C2_Plant_Value[MAJCOM,Facility_Class]/Recap_Years*Percent_MAJCOM_PRV[MAJCOM]*Deterioration_Enabled
Revitalization[MAJCOM,Facility_Class] = Model_Effectiveness[MAJCOM,Facility_Class]
Deterioration_Enabled = 0
Funding_Rate = ARRAYSUM(Revitalization[*,*])
Percent_MAJCOM_PRV[ADW] = 0.004
Percent_MAJCOM_PRV[AFSOC] = 0.005
Percent_MAJCOM_PRV[USAFA] = 0.015
Percent_MAJCOM_PRV[AETC] = 0.09
Percent_MAJCOM_PRV[ACC] = 0.148
Percent_MAJCOM_PRV[USAFE] = 0.069
Percent_MAJCOM_PRV[PACAF] = 0.117
Percent_MAJCOM_PRV[AFMC] = 0.222
Percent_MAJCOM_PRV[AFSPC] = 0.111
Percent_MAJCOM_PRV[AMC] = 0.112
Percent_MAJCOM_PRV[ANG] = 0.069
Percent_MAJCOM_PRV[AFRC] = 0.038
Recap_Years = 67
Total_C1_and_C2 = ARRAYSUM(C1_C2_Plant_Value[ANG,*])
Total_C3_and_C4 = ARRAYSUM(C3_C4_Requirements[*,*])
Total_Degrade = ARRAYSUM(Deterioration[*,*])
Model_Confidence(t) = Model_Confidence(t - dt) + (- Tradeoff) * dt
INIT Model_Confidence = 100
Tradeoff (Not in a sector)
Tradeoff = Model_Confidence*(1-Confidence_Factor)*Corporate_Adjustments_Allowed

OUTFLOW FROM: Model_Confidence (IN SECTOR: Model Confidence)

INFLOW TO: Corporate_Adjustments (IN SECTOR: Corporate Adjustments)
ACC_Result = ARRAYSUM(C3_C4_Requirements[ACC,*])
AFMC_Result = ARRAYSUM(C3_C4_Requirements[AFMC,*])
ANG_Result = ARRAYSUM(C3_C4_Requirements[ANG,*])
Confidence_Factor = ARRAYSUM(Model_Effectiveness[*,*])/MILCON_Funding
Corporate_Adjustments_Allowed = 0
MILCON_Funding = 1500

Appendix K – FY2004 MAJCOM Project Submittal Recapitalization Rate

(Based on 100% Recapitalization)

(Sources: FY2004 Integrated Priority List; FY2000 Real Property Database)

MAJCOM	Total PRV ($000)	67-Year Recap	FY2004 Actual Submittal	Delta	Percent Change
11 WG	$487,680	$7,279	$18,300	$11,021	151%
ACC	$16,745,199	$249,928	$737,200	$487,272	195%
AETC	$10,174,597	$151,860	$224,400	$72,540	48%
AFMC	$24,985,220	$372,914	$351,400	- $21,514	-6%
AFRC	$4,290,430	$64,036	$113,400	$49,364	77%
AFSOC	$539,136	$8,047	$7,350	- $697	-9%
AFSPC	$12,507,196	$186,675	$222,110	$35,435	19%
AMC	$12,603,289	$188,109	$234,800	$46,691	25%
ANG	$7,926,357	$118,304	$182,600	$64,296	54%
PACAF	$13,140,013	$196,120	$247,600	$51,480	26%
USAFA	$1,690,019	$25,224	$24,300	- $924	-4%
USAFE	$7,758,778	$115,803	$126,950	$11,147	10%

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14. ABSTRACT
The fiscal year (FY)1999 and FY2000 National Defense Authorization Acts (NDAA) amended Title 10 USC, Section 17, and directed the secretary of defense to report annually on the capability of installations and facilities to provide support to forces in the conduct of their missions. This has come to be known as the Installations' Readiness Report (IRR). The Air Force's IRR links facility sustainment, restoration, and modernization (SRM) requirements, with the impact on the installation's ability to support the mission associated with the particular facility class. The Air Force's centralized military construction (MILCON) program model used to program major facility requirements does not directly target facility investment in the "deficient" facility classes defined in the Installations' Readiness Report. This research combined the system dynamics and value-focused thinking methodologies together to develop a proposed MILCON model that might better target funding of deficient facility class requirements. The results from a system dynamics analysis of the existing MILCON model were used to better understand the MILCON program and leverage management policies in a proposed MILCON model. The proposed MILCON model was then developed using a gold standard value-focused thinking approach. The proposed model was also evaluated to identify relevant favorable or unfavorable behavior trends in eliminating deficient facility class requirements. The proposed model provides a significant short and long-term improvement over the existing model in targeting and eliminating deficient facility class requirements. The model demonstrates a 20 percent improvement in targeting these facility requirements in FY2004 and a long-term trend towards completely eliminating these requirements is likely.

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